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JOURNAL *of* EDUCATIONAL RESEARCH

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QUALITIES OF MERIT IN GOOD AND POOR TEACHERS

A. R. MEAD
Ohio Wesleyan University

WHO is the *good* teacher? This is a question which has not yet been answered in such a way as to possess both *validity* and reliability. Data need not be assembled to verify this statement. Current methods of determining good and poor teachers are subject to error. Yet the importance of this problem is probably greater than that of any other single problem in the entire field of education. To state the matter briefly, the lives and welfare of millions of children are involved; the hopes, aspirations, and ideals of individual and social activities are at stake; and the tremendous financial loss involved in poor teaching gives all who reflect cause for considerable anxiety.

PRELIMINARY ASSUMPTIONS

At least four preliminary assumptions are made in this investigation: (1) Since current psychological theories as to the nature of behavior do not agree, no one theory of behavior may be accepted as valid. (2) Many matters assumed as known by "common sense" judgments are subject to scrutiny, investigation, and criticism. (3) All promising methods, suggestions, and clues to study should be used both singly and in combination to help study this intricate situation. (4) There is to-day no known scientifically accurate criterion (or criteria) as to what constitutes good and poor teaching, therefore, investigation should seek to establish such criterion (or criteria).

Methods used in the study of this problem have been varied, and, as will be shown, the results have slight agreement. It is, therefore, of importance to consider both the methods used and the results secured by others. The methods used by others will be described briefly. In general, the following methods have been used: (1) The judgments of pupils have been sought as to the qualities of the teachers by whom they have been taught. (2) The judgments of school officers about the qualities possessed by teachers under their direction have been obtained. (3) The qualities of teachers listed by placement bureaus have been compiled and

classified. (4) The problems and difficulties encountered by teachers have been studied with the hope that desirable teachers might be identified. (5) Various combinations of methods involving subjective and objective procedures have been used.

RESUME OF METHODS AND RESULTS OF OTHER STUDIES: THE JUDGMENT OF PUPILS TAUGHT

In 1896, Kratz published a study based upon the judgments of pupils taught. He asked 2411 children to name the qualities of their best teachers. School year groups from II to VIII were included. Bell used a questionnaire and secured data from 800 students at Valparaiso University (Indiana), and Chattanooga Normal School (Tennessee). Bird secured judgments of qualities of teachers from 150 normal school girls, 253 high-school boys, and 130 high-school girls. The qualities were ranked according to frequency of occurrence. Bird computed simple correlations between the three sets of judgments, thus actually using a combination method. Book published a study in 1905 in which he asked 1967 high-school students to name the qualities they most appreciated in their teachers, and Knight used this method again, but with more care than his predecessors (1921). Pupils wrote on a sheet of paper the names of all the teachers they ever had. They were then instructed to select the best one from the group, then the next best, and so on in descending order. Pupils in the seventh and eighth grades and in high school made the judgments. Knight thus secured a general merit ranking of teachers. Davis sought information from high-school pupils as to weaknesses and elements of strength of their teachers. Over 13,000 pupils gave their judgments on elements of strength, and over 9,000 on elements of weaknesses. In most cases this method has been subjectively applied without the use of a check-list of qualities. It is, nevertheless, a suggestive method.

JUDGMENTS OF SCHOOL OFFICIALS

Littler, Buellesfield, Ruediger and Strayer, and Clapp sought information from superintendents as to elements of strength and weaknesses in teachers. Littler compiled the causes of failures among 676 elementary teachers, as given by school officers in a questionnaire study. Similarly, Buellesfield secured data from 140 superintendents and about 4,848 teachers (270 of these teachers were failures). Ruediger and Strayer secured rankings of certain broad or inclusive qualities from 26 principals and supervisors. Clapp built a list of qualities, ten in num-

ber, from suggestions of superintendents and principals. These qualities were then used by 140 superintendents and principals to rate their best teachers.

QUALITIES LISTED BY PLACEMENT BUREAUS

Osburn secured blanks from the appointment bureaus or committees of 121 institutions and developed a list of 12 groups of general qualities. Both normal school and university bureaus were included.

PROBLEMS AND DIFFICULTIES OF TEACHERS

Sprague and Waples attacked the problem from the viewpoint of the teachers. The plans of both, though differing in details, were to collect from teachers themselves the difficulties encountered by the teachers. Sprague's material is from elementary teachers and Waples' from high-school teachers, most of whom were student-teachers. Of course, a teacher's difficulties are not his qualities of merit. Such data give us information as to what teachers must do to succeed. Knowing these facts, the qualities possessed by these teachers may be checked as to their effectiveness toward the difficulties to be met. The Commonwealth Fund teacher-training study under Charters' direction recognizes this distinction and has secured data on both phases by use of an elaborate check-list of elements which were compiled from a great variety of sources. Very likely the use of this material will give us more information and more help than we have ever possessed.

COMBINATION METHODS USED

The method used by Charters, mentioned above, is really a type of combination method. The writer is not very familiar with the origin of Charters' plan. Three other examples involve statistical technique. The first is the study made by F. B. Knight. He first secured estimates of the relative merits of 39 teachers from 240 selected high-school pupils. The method used was that of relative ranking already mentioned. Estimates were also made by teachers and supervisors, thus giving three sets of ratings of the same teachers. He then computed simple correlations between the three. The average of eight r's between teachers' and pupils' estimates was +.578, and between supervisors' and pupils' was +.743.[1] Somers used a similar method, but added multiple and partial correlations. Whitney followed with a similar study, but added the regression equation as a means of securing a predictive index. A few other students,

[1] Knight, F. B. *Qualities of Success in Teaching.* New York: Teachers College, Columbia University, 1922.

such as Meriam and Fordyce, have used simple correlations. A summary of important findings of these several studies is reproduced in Table I.

TABLE I

SUMMARY OF RANKINGS BY DIFFERENT INVESTIGATORS

Qualities in Order of Merit from Strongest to Weakest, as Reported in Each Study

QUALITY	INVESTIGATORS									
	Krats	Bird	Davis	Book	Ruediger Strayer	Clapp	Osburn	Knight	Whitney	Somers
Politeness	6th									
Personal appearance	2nd		10th		10th	2nd	6th			
Kindness, sympathy	3rd	1st		1st		8th				
Fairness		2nd	3rd	7th		6th				
Sociability, social factor		7th	8th	4th	9th		12th			
Crossness	7th									
Sense of humor		4th								
Good temper, good humor		6th	4th	2nd						
Discipline		3rd	5th	8th			1st			
Neatness	5th	7th								
Patience	4th	4th	9th	3rd						
Preparation		9th					10.5			
Clarity of explanation power to hold interest		9th	6th							
Knowledge of one's subject (scholarship)			1st			10th	3.5	9th	4th	1st
Ability to hold interest			5th							
Willingness to help			6th							
Personality			7th		4th		3.5			3rd
Firmness				5th						
Power to encourage				6th						
Order					1st					
Skill in instruction					2nd		2nd			
Initiative					3rd					
Studiousness					5th					
Following suggestions (coöperation)					6th		9th			
Experience					8th			12th		
Health—vitality					11th	9th			3rd	
Address						1st				
Optimism						3rd				
Reserve						4th				
Enthusiasm						5th				
Sincerity						7th				
Ability to use English							8th	13th		
Character			2nd				5th			
Accord					7th					
General ability (intelligence)							10.5	8th	5th	4th
Tact (professional)								2nd		
Scholarship in Geography								3rd		
Scholarship in Arithmetic								14th		
Scholarship in Science								6th		
Scholarship in History								7th		
Scholarship in Student Teaching								11th	1st	2nd
Age								10th		
Salary								4th		
Pupils' estimate								1st		
Theory scholarship									2nd	
High-school scholarship									6th	
Disciplinary and social irregularities										6th

NOTE: The qualities listed in the above table are as nearly identical as can be made by the writer. In some cases, the items are not qualities, e.g., salary, etc. The most important feature is the lack of agreement; the variation is so great as to give little or no agreement.

Shannon and the writer have used combination methods involving the use of rather elaborate check-lists of qualities. The studies were made independently, but the two investigators conferred from time to time, and hence, the plans have similar features. Shannon's preparation of the check-list and methods of collecting data are too detailed to reproduce

TABLE II

RELATIVE IMPORTANCE OF SEVENTY-THREE TRAITS AS SHOWN BY INTERVIEWS CONCERNING ONE HUNDRED "BEST" AND ONE HUNDRED "WORST" HIGH-SCHOOL TEACHERS AS REPORTED BY SHANNON

Rank	Traits	Weighting	Rank	Traits	Weighting
1.	Stimulative power	342	*37.	Facial expression	207
*2.	Presence Commanding Attention	319	*38.	Loyalty	207
*3.	Reliableness	316	*39.	Integrity	205
*4.	Dignity	311	40.	Reputation	205
5.	Forcefulness	302	41.	Altruism	204
6.	Judgment	297	42.	Power of expression	201
7.	Accuracy	284	43.	Originality	194
8.	Foresight	279	*44.	Neatness	192
*9.	Adaptability	276	45.	Generosity	191
10.	Earnestness	273	46.	Ingenuity	191
*11.	Orderliness	267	47.	Conventional Attitude	190
*12.	Resourcefulness	263	*48.	Patience	182
13.	Open-mindedness	257	49.	Animation	177
14.	Executive ability	255	*50.	Self-confidence	175
*15.	Coöperativeness	250	51.	Activeness	173
*16.	Industriousness	249	52.	Manners	172
*17.	Courage	248	*53.	Address	171
18.	Progressiveness	247	54.	Attention to English	168
19	Practicability	245	55.	Voice	165
20.	Frankness	243	*56.	Optimism	164
*21.	Leadership	240	57.	Ambition	162
*22.	Fairness	238	58.	Business sense	161
*23.	Punctuality	235	59.	Clean person	156
*24.	Self-control	233	60.	Clean habits	152
25.	Sympathy	233	61.	Posture	151
*26.	Enthusiasm	230	62.	Pay obligations	149
*27.	Modesty	227	63.	Sobriety	146
*28.	Alertness	219	64.	Enunciation	137
*29.	Reserve	218	65.	Clean speech	136
30.	Affability	211	*66.	Reverence	123
*31.	Sense of humor	211	*67.	Vitality	123
32.	Thriftiness	210	*68.	Poise	117
33.	Breadth of interest	209	*69.	Health	116
*34.	Idealism	209	*70.	Intelligence	95
35.	Propriety in dress	209	71.	Walk	89
*36.	Initiative	208	72.	Physique	71
			73.	Personal appearance	66

* Qualities which were also found important in author's study.

NOTE: This table reads as follows; the first ranking in importance was ascribed to the quality of "stimulative power" which had a final weighting of 342 points; the second ranking was given to "presence commanding attention" with a final weighting of 319 points, etc.

here, but the check-list was carefully prepared. The study is based upon personal interviews with ninety-seven supervisors. These interviews concerned the good and poor high-school teachers who had worked under these supervisors. The results are summarized in Table II.

TABLE III

QUALITIES OF POOR TEACHERS: CAUSES OF FAILURE. RANKED IN ORDER OF FREQUENCY AS AN INDEX OF IMPORTANCE

Qualities	Rankings of Qualities		
	Littler	*Davis*	*Buellesfield*
1. Lack of discipline	1st	2nd	1st
2. Lack of proper personality	2nd	10th	
3. Lack of interest in work	3rd	4th	12th
4. Lack of scholarship	4th	11th	4th
5. Lack of daily preparation	5th		5th
6. Lack of preparation	6th		
7. Lack of instructional skill	7th		3rd
8. Lack of pedagogical training	8th		
9. Failure to coöperate	9th		
10. Non-professional attitude	10th		8.5
11. Lack of tact	11th		2nd
12. Dislike of children	12th	12th	
13. Too young	13th		21st
14. Failure in routine	14th		
15. Immorality	15th		
16. Ill health	16th		17.5
17. "Soft" pedagogy	17th		
18. General incompetency	18th		
19. No aim in work	19th		
20. Too old; grown stale	20th		
21. Failure to get results	23rd		
22. False conceptions of educational success	23rd		
23. Clamor after latest fads in texts	23rd		
24. Not dependent on self for living	23rd		
25. Attitude not a working one	23rd		
26. Failure to explain and make clear		1st	
27. Favoritism		3rd	
28. Unfairness		5th	
29. Quick temper		6th	14th
30. Nervousness		7th	7th
31. Over-strictness		8th	
32. Easiness		9th	
33. Impatience		13th	
34. Sarcasm		14th	
35. Slovenliness		15th	20th
36. Laziness			6th
37. Deficient in social traits			8.5
38. Unattractive in appearance			10th
39. Lack of refinement			11th
40. Too many outside activities			13th
41. Frivolous			15.5
42. Deceitful			17.5
43. Immoral			15.5
44. Too long in one place			19th
45. Discordant religious views for one community			22nd
46. Questionable amusements			23rd
47. Keeping company with school pupils			24th
48. Use of tobacco			25th

STUDIES OF THE QUALITIES OF POOR TEACHERS

The characteristics of poor teachers were made the subject of study in certain of the investigations. Davis asked the high-school pupils to report the elements of weaknesses in their teachers. This aspect also appears in a report of *old* and *young* teachers by G. Stanley Hall and Louise Gulick (1903, 1918). Littler and Buellesfield made the "causes of failure" the subject of study. One group studied by the writer was a group of "poor" teachers. Barr made a study of the characteristic differences of good and poor teachers of the social studies. Those teachers were selected as good who were ranked as outstanding by their superintendents, by a state inspector, and who on visitation were judged by Barr to be superior teachers. From the group originally selected only those who won promotion in larger school systems, who had superior training, who had superior experience, and who were reëmployed, were used for detailed study. A similar criteria was used for poor teachers. Such teachers were from smaller school systems, had less training than good teachers, less experience, and one-half of them were not reëmployed. Thus, there resulted two groups of 47 each, one of good teachers and one of poor teachers. Barr then secured data about these teachers by the following procedures: (1) by making stenographic records of classroom work; (2) by making a time-chart record of the phases of classroom work under each teacher; (3) by making attention charts with Morrison's procedure; (4) by making a time-distribution study of the major activities of the teacher's classroom periods for one week; (5) by having each teacher answer a detailed questionnaire on his (or her) own work; (6) by devising a check-list used as a means of recording data on the teacher's classroom work; (7) by having the superintendent make and report an analysis of the strong and weak phases of the teacher's work; (8) by having each teacher write a letter giving his (or her) own analysis of strong and weak phases of the work; and (9) by collecting miscellaneous data while observing the classroom work. All reasonable precautions were made so that the data would be objective.

The differences between the two groups of teachers were then ascertained by studying the eight types of data. As these two groups worked in the classroom, the comments they made about pupils' responses were not materially different. As a typical condition, the good teachers frequently used some means of motivation, such as penalties, interest appeal of the subject matter, and the experiences and interests of the pupils themselves; and these pupils were more likely to manifest a good or

superior degree of interest. Thus the record of pupils' attentiveness was clearly in favor of the good teachers. In organization of subject matter, the poor type of teachers usually followed the textbook page for page, while the good teachers were quite likely to use some form of a topical outline. Any variation from the textbook assignment was usually carried out among the good teachers. Neither group was prominent in making provisions for individual differences of pupils, although the good teachers were more likely to do such a thing. In the use of various illustrative materials, the good teachers ranked higher, particularly with variety of materials. In appraisal of pupil response, the poor teachers usually made the appraisal response for their pupils, while the good teachers frequently guided the pupils to make their own appraisals. Disciplinary conditions were clearly superior in the classrooms of the good teachers. Other features of superiority of good teachers were knowledge of subject matter, well-arranged procedure for examinations, pleasant attitude toward pupils, a sense of humor, and patience and enthusiasm. There were four major categories of weaknesses among poor teachers, as follows: (1) lack of mastery of subject matter; (2) inferior technique or procedure; (3) personal characteristics; and (4) inability to discipline. The chief sources of weaknesses were defective characteristics of personality, or personal qualities.[2]

THE PRESENT INVESTIGATION

The present investigation was made by the coöperation of a considerable number of persons. A long, classified check-list in which the items were defined was developed. This was used as a check-list, and also as a guide in an interview.

DERIVATION OF THE CHECK-LIST

The original items, probably forty in number, were taken from the rating blank used for reporting work of student-teachers at Ohio Wesleyan University. The nucleus of the list of personal qualities was established by a group of eight advanced students in educational measurements, in an attempt to secure a basis for judging the desirable personal qualities of prospective teachers and to help select the more promising students in courses of education. The author added many items, from time to time, and compiled most of the explanatory terms. Miss Rosamond Root and Mr. E. F. Ritchie of Teachers College made valuable

[2] Barr, A. S. *Characteristic Differences of Good and Poor Teachers.* Bloomington, Illinois: Public School Publishing Company, 1929.

additions and criticisms. Even though many terms in the group of "Personal Qualities" are apparently synonymous, and are often the negative aspect of some other qualities in the list, the author decided to keep all of them for use in the research, and not make eliminations until data were found which make some eliminations.

USE OF THE INTERVIEW

Two graduate students at Teachers College, Miss E. A. Belden, and Mr. E. F. Ritchie, used this method. Miss Belden conducted five interviews, and Mr. Ritchie conducted four interviews. They found that from one to two hours were needed for the interview, if it was carefully made; that the check-list is not well adapted to studying the qualities of teachers in kindergarten and primary grades; and that the best analyses were secured from principals, superintendents, and supervisors who had had *recent* associations with the teachers studied. It was expected that with this method more valid judgments would be secured. If a tendency to be more discriminative will produce such validity, then this method seems to improve the data in that way. By the "check-list" method, large groups of qualities would often be checked by the same symbol; with this method, though only nine teachers were studied, the rather common appearance of — and "n" judgments served to make a variation from this.

As might be expected, very great difficulties were encountered in the "Personal Qualities" section in which many terms are synonymous. Many helpful suggestions were made for the improvement of the list.

RESULTS AND CHECK-LIST

The frequency of appearance as a "+" quality was taken as a basis of importance, and the figures reported concern these qualities. Five groups of teachers were selected. Four groups were studied by the check-list method and the fifth group by the interview. In the check-list method, the person making the analyses, ranked his teachers in order of merit and analyzed the "best" or "worst," as the case might be. The use of the symbols "+," "—," and "n" were the same as in the interview method. Forty elementary, thirty high school, twenty-five very poor, and thirty miscellaneous types of teachers were analyzed by the use of the check-list alone. Nine teachers were analyzed by the check-list and interview. A total of 130 teachers were studied.

Check-List of Teachers' Qualities

EXPLANATIONS

The check-list is arranged in five groups of items, as follows: (1) items of technique or method; (2) items of scholarship; (3) items of professional interests; (4) items of community relations; and (5) personal qualities. Inasmuch as this was a tool for investigation and study, each one of the five groups is incomplete and the investigator is to add such others as he may find, and check them with the appropriate symbol.

Each item which appears in the teacher as a *prominent* factor is to be checked "+"; each item which can be identified as belonging to the teacher, but without evidence of being a prominent factor is to be checked "—"; all others are to be checked "n," meaning "not identifiable."

The list may be used only after one has become familiar with the meaning of the items included and the technique involved. This is important to secure judgments on the same factors as the list has used. Probably the best method is a combination of the interview method with the check-list in the hands of one who has carefully studied its use. It is also useful, but subject to more error, to allow anyone familiar with it to use it in making analyses of teachers' qualities.

DIRECTIONS TO INVESTIGATOR

First, study the check-list until very familiar with the meaning of each item and the technique of using.

Second, secure interviews (if possible) with persons who have had experience in supervising teachers. The interview with one person should cover two separate periods, in order to obviate fatigue and maintain interest on the part of the person interviewed.

Third, in conducting the interview use the following procedures:

First, to identify the best (or poorest) teacher, have the interviewee rank his teachers in an order of merit, i.e., the best as first, next best as second, and so on. From this ranking, have him select the first (or last) for analysis. If the interviewee should be unable to recall much about the teacher selected, let him take the next one in rank and record the fact. This should be done only when the list ranked in order of merit contains ten or more teachers.

Second, ascertain, and record the following: (1) name and position of person interviewed; (2) type of teacher analyzed—kindergarten, elementary, high school, physical education, English, Latin, etc. Record this by general class (high school, elementary), school year (1st, 2nd,

etc.), and subjects taught, if possible; (3) dates of your interview and of the interviewee's contact with the teacher analyzed. *Be sure to obtain these;* (4) whether teacher analyzed was a student-teacher or a teacher in service; (5) whether the interviewee was taught by the teacher, or whether he supervised the teacher; and (6) quantitative items of preparation of the teacher analyzed in terms of years in each grade of school—elementary, high-school, two-year normal school, four-year teachers college, four-year liberal arts college, number of summer sessions, and special preparation not included above.

Third, ask the person interviewed to give his judgment as to whether the teacher possessed each item in the list as a *prominent* trait; for example, "Was this teacher's use of the Socratic method a prominent trait in his or her work?" If the answer is "yes," follow it by a request for data to prove it *was* prominent. If no such evidence can be given, check it "—"; if the evidence is given check it "+"; if the person is unable to identify it as a part of the teacher's equipment, mark it "n." In each case, be sure the *person interviewed has the same item in mind that you have.* You may have to explain many of them because teachers often disagree on the meanings of the most common terms. You should practice interviewing before you begin to secure data for your study. You will find many specific features to watch, to avoid, and many to save time. When you have completed the analysis of the "best" teachers, repeat the procedure (if you can do so) by making an analysis of the "worst" teachers known by the person interviewed. Add to the list any items *not* in the list but discovered in the interview and check appropriately.

Fourth, prepare a form for tabulation consisting of sheets of the check-list pasted on large sheets of paper quadrille ruled. Make three large columns after each group of items, for tabulating the "+," "—," and "n" marks, in this fashion:

	+	—	n
1. Choice of aims	///	//	//
2. Choice of method	///	///	/

Then proceed to tabulate by placing tallies for each mark in its appropriate place.

Fifth, then make three groups of the items of each class in the check-list, for the "best" teacher, and likewise three for the "worst" teacher, if you have data for both types. The first group is to contain those items which in a majority of cases are *prominent* traits; the second, those items

which are in a majority of cases marked "—"; and third, those which in a majority of cases are marked "n." The value of the study will be greatly improved if you have data about the "worst" teacher and can make comparisons of your *findings* for both types of teachers.

Items in section 5 listed above, overlap in several cases, but nevertheless, in a matter of research, each should be considered, and none eliminated until data show they are of little or no concern in the teaching arts.

The numbered, blank spaces at the end of each section are to be used for the insertion, or addition, of items not included in the list but discovered during the making of an analysis.

ANALYSIS WITHOUT INTERVIEWS

Directions—Select the best, or one of the best, teachers with whom you have had intimate acquaintance.

Fill in the blanks at the head of the check-list. "Class of Teacher" means "elementary," "high school," "teacher of special subject," or "rural one-room."

Then make an analysis of this teacher, using the check-list as your guide. If a trait is a strong, outstanding characteristic, mark it "+." If it is weak, mark it "—." If you are unable to identify it, mark it "n."

Add any traits which you may find and which are not included in the list.

Likewise, select your poorest teacher and make an analysis in the same way.

RESULTS OF THE INVESTIGATION

Qualities found important among the several groups of teachers are given in Tables IV to VIII. They are taken from the check-list with definitive and explanatory terms omitted. Only those qualities are included which were outstanding in one or more of the groups of teachers, and this means that these qualities were found in fifty percent or more of the groups. After each quality are indices of the groups of teachers in which the quality was outstanding. The group of elementary teachers is indicated by "Elem."; high-school teachers by "H. S."; miscellaneous teachers by "Misc."; miscellaneous teachers studied by the interview method are indicated by "Misc. I"; and poor teachers by "P." The qualities are classified under the following headings: elements of procedure; technique; method or devices; qualities of scholarship; qualities producing professional improvement; relations of the teacher to the community; and personal qualities. The number which precedes an

TABLE IV

QUALITIES OF TECHNIQUE, METHOD, OR TEACHING DEVICES AND TYPES OF TEACHERS IN WHICH THEY ARE IMPORTANT FACTORS

Qualities	Types of teachers with the quality outstanding				
	Elem.	H. S.	Misc.	Misc. I.	P
1. Choice of aims	x	x	x	x	
2. Choice of method	x	x	x	x	
3. Selection of content	x	x	x	x	
4. Organization of content	x	x	x	x	
5. Daily lesson preparation	x	x	x	x	
6. Skill in assignment	x	x	x	x	
7. Wise use of textbooks	x	x	x	x	
8. Helpful use of other books	x		x	x	
9. Skillful use of apparatus	x		x	x	
10. Drill	x	x	x	x	
11. Review	x	x	x	x	
12. Inductive problem work	x		x	x	
13. Deductive problem work			x	x	
14. Problem method	x		x	x	
15. Project	x		x	x	
16. Socialized recitation	x		x	x	
17. Recitation lesson	x	x	x	x	x
18. Appreciation lesson	x		x	x	
19. Exercises for transfer and application			x	x	
20. Laboratory activities				x	
21. Lecture		x	x		
22. Questioning	x	x	x	x	
23. Use of devices to stimulate initiative			x	x	
24. Exposition	x	x	x	x	
25. Causing research				x	
26. Written reports		x	x	x	
27. Use of combination of method types			x	x	
28. Use of tests and examinations	x	x	x	x	
29. Adjustments to individual differences	x	x	x	x	
30. Variety in method	x	x	x	x	
31. Methods especially applicable to particular subject		x	x	x	
32. Matters of routine management—					
1. care of heating	x	x	x	x	x
2. care of lighting	x	x	x	x	x
3. care of ventilation	x	x	x	x	x
4. care of apparatus	x	x	x	x	
5. seating pupils	x	x	x	x	
6. keeping records	x	x	x	x	
7. making reports	x		x	x	
33. Handling cases of individual discipline	x	x	x	x	
34. Handling cases of group discipline	x	x	x	x	
35. Care of supplies	x	x	x	x	
36. Supervised study	x		x	x	
37. Directing trips and exercises				x	
38. Directing assembly				x	
39. Preparing bibliographies				x	
40. Directing dramatization			x	x	
	40	30	30	9	21
	33	27	41	45	4

NOTE: The two rows of numbers read as follows: among 40 elementary teachers, 33 qualities of technique were important; in 30 high-school teachers, 27 types of technique were strong, etc.

item in the list is the original check-list number. At the end of each table are two rows of numerals. The first row gives the total number and type of teachers involved in the study; the second row gives the total number of qualities which were outstanding in each of the groups of teachers.

SOME COMPARISONS OF RESULTS

The group of 21 poor teachers as compared with each of the other four groups are very deficient in the following: (a) phases of technique or teaching procedure; (b) elements of scholarship useful to a teacher; (c) factors producing professional improvement; (d) relations of teach-

TABLE V

QUALITIES OF SCHOLARSHIP AND TYPES OF TEACHERS IN WHICH THEY ARE IMPORTANT

Qualities	Types of teachers with the quality outstanding				
	Elem.	H. S.	Misc.	Misc. I.	P
1. Scholarship in subject taught	x	x		x	
(a) wide range of knowledge			x	x	
(b) mastery of knowledge			x	x	
(c) history of subject			x		
2. Scholarship in related subjects	x	x	x	x	
3. Use of vernacular	x	x	x	x	
4. Scholarship in educational theory and practice	x				
(a) educational psychology	x		x	x	
(b) methods (principles of teaching)	x		x		
(c) history of education			x	x	
(d) school administration			x	x	
(e) observation of teaching			x	x	
(f) supervised student-teaching			x	x	
5. Types of general information possessed by teacher—					
(a) about local community	x	x	x	x	x
(b) current national political issues		x		x	
(c) international affairs			x		
(d) current periodical literature				x	
(e) current religious tendencies	x		x	x	
(f) current prominent personalities	x	x			
6. Knowledge of pupils' previous training and experience	x		x	x	
7. Knowledge of pupils' physical status	x		x	x	
8. Skill in oral speech	x	x	x	x	
9. Skill in arithmetic	x	x	x	x	
10. Ability in oral reading	x	x	x	x	
11. Ability in handwriting	x	x	x	x	
12. Knowledge of own state school system			x	x	
13. Knowledge of rules of own school system				x	x
14. Knowledge of views, foibles of self, and rest of staff	x		x	x	
	40	30	30	9	21
	16	10	22	23	2

NOTE: In 40 elementary teachers, sixteen phases of scholarship are important, etc.

ers to the community; and (e) personal qualities. Practically all of the serious defects in personal qualities are among the poor teachers.

Some peculiar results appear in the tables. In Table IV, the ability to use apparatus skillfully is not an outstanding quality of the thirty high-school teachers. This should not be construed as indicating that this ability is unimportant for all high-school teachers. Probably a larger number of teachers including a greater variety of teaching service will show a different status for this ability.

TABLE VI

FACTORS PRODUCING PROFESSIONAL IMPROVEMENT

Factors	Types of teachers with these factors outstanding				
	Elem.	H. S.	Misc.	Misc. I.	P
1. Sensitive to the best ethical standards of the profession	x	x	x	x	
2. Participation in movements for—					
(a) better educational laws			x	x	
(b) better schools			x	x	
(c) better conditions for teachers			x	x	
3. Promotion of desirable educational organizations			x	x	
4. Attendance at teachers meetings	x	x	x	x	x
5. Active participation in teachers meetings	x		x	x	
6. Attendance at educational associations			x	x	
7. Participation in educational associations			x	x	
8. Research while in service				x	
9. Advanced study at summer schools	x		x	x	
10. Advanced study in residence in college year				x	
11. Defending professional ethics and ideals			x	x	
12. Defending movements to improve profession			x	x	
13. Giving publicity to service rendered by others			x	x	
14. Reading current professional literature	x		x	x	
15. Making published contributions				x	
16. Combating tendency to cynicism			x	x	
17. Keeping special knowledge of children confidential	x	x	x	x	
18. Coöperative attitude toward supervision	x	x	x	x	x
19. Coöperative attitude toward administrative staff and problems	x		x	x	
20. Appropriate attitude toward other departments of work	x	x	x	x	x
21. Defending entrance standards of profession			x	x	
22. Helping improve entrance standards of profession			x		
23. Coöperation in inter-school affairs			x	x	
24. Teacher's interest in his (or her) work			x	x	
	40	30	30	9	21
	9	5	23	25	3

NOTE: Among 40 elementary teachers, nine items are outstanding; among 30 high-school teachers, five items, etc.

TABLE VII

Relation of the Teacher to the Community

Relation	Types of teachers with these relations outstanding				
	Elem.	H. S.	Misc.	Misc. I.	P
1. Adjustment to board and room	x		x	x	x
2. Courtesy to patrons		x	x	x	x
3. Willingness to coöperate with patrons	x	x	x	x	x
4. Understanding policy of school towards its community	x	x	x	x	
5. Participation in community activities	x	x	x	x	
6. Harmonizing with best moral standards	x	x	x		
7. Harmonizing with best social standards	x	x	x	x	
8. Use of tact in local political matters			x		
9. Use of tact in local religious matters		x	x		
10. Use of tact in relation to gossip	x	x	x	x	
11. Discretion in conservation with patrons	x	x	x	x	
12. Avoidance of arousing antagonism by other cause than those mentioned above	x	x	x	x	x
13. Ability to speak before community audiences				x	
14. Business relations			x	x	x
15. Coöperative work with local libraries	x		x		
16. Participation in community recreations					
	40	30	30	9	21
	10	10	14	11	5

Note: Among 40 elementary teachers, 10 relations are outstanding; among 30 high-school teachers 10 relations are outstanding, etc.

TABLE VIII

Personal Qualities of Teachers and Types of Teachers in Which They Are Important

(Marginal numbers are rankings in Shannon's study.)

		Types of teachers with the quality outstanding				
		Elem.	H. S.	Misc.	Misc. I.	P
(42)	1. Cleanliness in person and habits	x	x	x	x	x
(9)	2. Coöperation	x	x	x	x	x
(25)	3. Courage	x	x	x	x	
(1)	4. Decision	x	x	x	x	
(3)	5. Enthusiasm	x	x	x	x	
(62)	6. Expressive countenance	x	x	x	x	x
	7. Good follower	x		x	x	
	8. Good loser			x	x	
	9. Good mixer	x	x	x	x	
(50)	10. Idealism	x	x	x	x	
(7)	11. Industry	x	x	x	x	
(23)	12. Initiative	x	x	x	x	
(43)	13. Intelligence	x	x	x	x	
(38)	14. Leadership	x	x	x	x	
(19)	14a. Open-mindedness	x	x	x	x	
(28)	15. Loyalty	x	x	x	x	
(37)	16. Manner	x	x		x	x
(48)	17. Modesty	x	x		x	x
(20)	18. Neatness	x	x	x	x	x
(49)	19. Optimism	x	x	x	x	
(7)	20. Persistence	x	x	x	x	
(12)	21. Personality likeable	x	x	x	x	x
(46)	22. Poise and carriage	x	x	x	x	x
(32)	23. Presence commanding attention	x	x	x	x	
(10)	24. Reliability	x	x	x	x	

TABLE VIII (Continued)

PERSONAL QUALITIES OF TEACHERS AND TYPES OF TEACHERS IN WHICH THEY ARE IMPORTANT

(Marginal numbers are rankings in Shannon's study.)

			Types of teachers with the quality outstanding				
			Elem.	H. S.	Misc.	Misc. I.	P
(33)	25.	Reserve and dignity	x	x	x	x	
(6)	26.	Adaptability	x	x	x	x	
(15)	27.	Alertness	x	x	x	x	
(27)	28.	Sense of order	x	x	x	x	
(36)	29.	Sense of humor	x	x	x	x	
	30.	Sensitive to social proprieties	x	x	x	x	x
(2)	32.	Sympathy	x	x	x	x	x
	33.	Tactfulness	x	x	x	x	x
(34)	34.	Vigor	x	x	x	x	
(24)	35.	Vivacity	x	x	x	x	
(13)	36.	Voice	x	x	x	x	x
(63)	37.	Address	x	x	x	x	x
(31)	38.	Appearance	x	x	x	x	
(17)	39.	Good mental and physical health	x	x	x	x	x
	40.	Sense of justice	x	x	x	x	
	41.	Power	x	x	x	x	
	42.	Taste	x	x	x	x	
	43.	Judicial sense	x	x	x	x	
(57)	44.	Love	x	x	x	x	
	45.	Effort	x	x	x	x	
	46.	Kindness	x	x	x	x	x
	47.	Self-reliance	x	x	x	x	
(22)	48.	Self-confidence	x	x	x	x	
(26)	49.	Promptness	x	x	x	x	
	50.	Faith	x	x	x	x	
	51.	Patience	x	x	x	x	
	52.	Friendship	x	x	x	x	
	53.	Interest in others	x	x	x	x	
	54.	Politeness	x	x	x	x	
	55.	Cheerfulness	x	x	x	x	x
	56.	Firmness	x	x	x	x	
(65)	57.	Vitality	x	x	x	x	
(29)	58.	Fairness	x	x	x	x	
	59.	Personal influence	x	x	x	x	
(29)	60.	Integrity	x	x	x	x	x
(5)	61.	Self-control	x	x	x	x	
	62.	Resourcefulness	x	x	x	x	
	63.	Good nature	x	x	x	x	x
(68)	64.	Reverence	x	x	x	x	
			40	30	30	9	21
			63	62	62	64	18

NOTE: Among 40 elementary, 30 high school, and 30 miscellaneous, 62 qualities are outstanding. The same is true of 9 miscellaneous teachers studied carefully by the interview method. Only 18 qualities are outstanding among 21 poor teachers. Sincerity, stimulative power, and forcefulness were ranked high by Shannon, but are not outstanding in any of the five groups studied. There are seventeen important qualities that were not found so by Shannon.

CRITICISMS AND SUGGESTIONS

Shannon had the following to say about the use of the interview, in his study of 200 high-school teachers.

"1. The interviewees seemed to have the details of their weakest teachers better in mind than they did for the best teachers.

"2. The failure of the weak teachers is more definitely attributable to certain traits than is the success of the strongest. Good teachers may possess many of the seventy-three traits but not noticeably so, any more than do many other teachers. The success of the strong teachers is due more to the fact that the traits were not absent than that they are present. There are many traits which we do not notice in a good teacher, but we miss them sorely in a bad teacher.

"3. The interviewees responded more readily and more freely and with more interest with the worst teachers than when discussing the best.

"4. Poor teachers cause supervisors more trouble. Therefore, the supervisors give them more attention and consequently learn more about them.

"5. In recalling the experiences I had had myself with the two types of teachers, I found that I was much more certain about the facts in regard to the worst than I was in regard to the best."

Sprague used the check-list with two-year students at Montclair State Normal School (New Jersey). Sophomores who had had neither student-teaching nor teaching experience found the section on Professional Interests very difficult. In other groups, some difficulties were encountered, but were eliminated by explanations. Sophomores with ten weeks' student-teaching could handle this section much better than the other students; and in all groups of the check-list they were able to make judgments on many of the items listed.

WEAKNESSES FOUND IN AUTHOR'S STUDY

At every turn, the investigators found themselves faced with the necessity of trying to make the judgments objective. The author very frankly views the results with the check-list alone as being highly subjective in character. He would use the results, however, until he found them invalidated. The investigators also found there was a great temptation to hurry through the check-list, and a tendency to tire during the long interview. Belden and Ritchie suggested that a rest interval be used about the middle of the interview. All agreed that the person interviewed needed careful checking on his judgments. They found some items in the check-list which needed better definitions, and a few items were added during the progress of the five group studies. There is a temptation to start using the check-list for research purposes before the meaning attached to the items are known.

CHANGES IN PROCEDURE SUGGESTED BY THE STUDY

Some minor changes in conducting the interview have been incorporated in the directions used with the check-list.

In tabulation of data and further study the following directions are added:

(a) Obtain frequency distribution of "+," "—," and "n" qualities of the "good" and the "poor" teacher.

(b) Compute correlations between all groups of "+," "—," and "n" frequencies, using the frequencies as measures.

(c) If studies can be repeated and new data secured from analyses of the same teachers, compute reliability coefficients by the correlation method.

(d) Make a list of the qualities having the greatest reliability.

(e) Use this as a master list and conduct experimental studies of teaching efficiency by use of the Franzen-McCall formula

$$\left(\text{Teacher Efficiency} = \frac{(AQ_2 - AQ_1) + (AQ_4 - AQ_3) \text{ etc.}}{n}\right).$$

(f) As soon as similar studies can be made of changes produced in social, emotional, personal, and moral qualities, derive the teacher's efficiency in securing such changes, by a method like that of the Franzen-McCall formula.

(g) From such studies, typical lists of qualities for different classes of teachers may be secured, and these lists used as score-cards in teacher measurement.

SUMMARY OF FINDINGS

First, many different single and combined methods have been used to study the problem involved. The history of these studies from that made by Kratz to those made by Somers, Knight and Whitney show a gradual progression away from subjective, undefined procedures, and data towards more objective, more experimental, more scientific procedures, and exact results.

Second, an examination of the judgments made on the five groups of qualities in the author's studies shows a tendency to mark "personal qualities" as outstanding qualities more freely than in the other groups. This same tendency has appeared elsewhere. It suggests that there is a tendency for us to judge these *personal* qualities as of higher value than other types of qualities.

Third, outstanding qualities appeared more frequently in the miscellaneous group of teachers than in the other groups studied by the writer. Just why this should be is not clear.

Fourth, the group of 9 teachers studied by the interview method compared favorably with the 30 miscellaneous teachers in 46 outstanding elements of technique, 23 scholastic or subject-matter knowledge, 25 professional interests, 11 community relations, and 64 personal qualities.

Fifth, comparing Shannon's findings with the author's there are 33 items in Shannon's final list of 73 which were found important in the present study. Of curious significance is the low rank found for "personal appearance" in Shannon's study.

Sixth, prominent among the causes of failure found by Littler, Davis, and Buellesfield are "Lack of discipline," "Lack of interest in work," and "Lack of scholarship." Otherwise there is little agreement among the three sets of results. Between Littler's and Buellesfield's studies, there is agreement as to great influence of "Lack of daily preparation," approximate agreement as to effect of "Non-professional attitudes," and "Ill health." In Davis and Buellesfield's findings, "Nervousness" is ranked as a cause of failure—7th in rank. The terms used in these studies probably were not carefully defined and, hence, the judgments probably are not made on uniform conceptions.

Seventh, in all studies made by the author's students there are many examples of "—" and "n" judgments. These judgments are by this means eliminated as possible cases of erroneous "+" judgments, thus justifying the use of the "—" and "n" judgments. (See directions for meaning of "+," "—," and "n.")

Eighth, the writer believes that a follow-up study such as has been suggested above will ultimately make possible the adequate description of the qualities of different classes of teachers and a system of acceptable rating of teachers' efficiency.

Ninth, if further studies should show marked agreement with the findings given above, the qualities thus found important should become the results sought in the preparation of the teachers.

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STANDARDIZING CORRESPONDENCE INSTRUCTION[1]

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PURPOSES

THERE has been an increasing demand for college trained teachers in elementary and secondary schools, including those in the remotest rural sections. Higher requirements for the teaching profession have been secured through state laws and standardizing agencies. These influences have been so far-reaching in their effects as to cause thousands of teachers to take college courses by correspondence and extension classes. To take college courses while teaching, raises a problem regarding the teaching load. To what extent is a full-time teacher justified in doing college work by correspondence or by extension? What is a reasonable limit in the number of courses that may be taken profitably while teaching or in the rapidity with which a course may be pursued to advantage?

For several years the writer has had experience with correspondence instruction courses. During this time it has been observed occasionally that one student remains inactive for one or more months at a time, while another student completes an entire course within a month or two. Some students appear to take a very long time to complete a course, while others do a like amount of work in a comparatively short time. One classroom teacher, known to the writer, was obliged to secure a few hours of college credit within a very short time to prevent loss in salary and demotion in position. The teacher who takes a very short or a very long time to complete a correspondence course, or who attempts to do several correspondence courses simultaneously, can scarcely be expected to be efficient in both her college courses and in her teaching. In view of these variations and their possible effects on quality of work, this study was made to determine, if possible, some reasonable standards for correspondence instruction. Standards are needed for the proper guidance of students in their correspondence instruction courses.

MATERIALS

The study was based on the number of reports on assignments received by the writer from one hundred sixteen correspondence students who are teachers. These students returned a total of 2,382 assigned reports. These reports constituted the basis for this investigation.

[1] Research Paper 137, Journal Series, University of Arkansas.

METHOD

The calendar month was taken as the most convenient and easily available unit by which to measure the degree of activity with which a course was pursued. A student who failed to return as much as one assigned report within a given month was described as inactive for that month. Students were considered active as long as they continued to return one or more reports each month in succession. By a process of analysis the frequency with which reports were received was easily computed.

PRESENTATION OF DATA

The average number of months taken to complete an assigned course, in courses varying in length from eight to twenty-four assignments each, is shown in Table I.

TABLE I

AMOUNT OF TIME TAKEN BY STUDENTS TO COMPLETE A CORRESPONDENCE COURSE

Number Assignments in Course	Number Taking Course	Total Number		Av. No. of Reports per Month	No. of Months for One Student to Complete	
		Assignments	Months		All reports	One report
24	65	1560	386	4.04	5.93	.25
21	24	504	220	2.29	9.17	.44
16	13	208	83	2.50	6.38	.40
8	14	110	58	1.92	4.14	.52
Total	116	2382	747	3.19	...	.32

In a group of sixty-five students, taking courses containing twenty-four assignments, the average time to complete a course was less than six (5.93) months. A group of twenty-four students, taking courses containing twenty-one assignments, required an average of nine months to complete the work. The average amount of time to complete a course was apparently not greatly affected by its length. For example, the average time taken by a group of thirteen students, to complete a sixteen-assignment course, was higher than the average time taken by the group of sixty-five students to complete the twenty-four assignment course. These data, while significant, are scarcely valid, since the groups vary in size, and no group is very large.

It appears from Table I that the longer the course the greater the number of reports returned each month. Courses of twenty-four assignments resulted in an average of four reports monthly, while short courses of only eight assignments resulted in fewer than two reports each month. To the writer, a correspondence course carrying only one hour credit has

very doubtful value. The number of assignments most satisfactory for various semester hours of credit is probably sixteen, twenty-four, or thirty-two.

The average for the entire group of 116 students was more significant than the data just given. All the students returned an average of 3.19 assignments per month. It took an average of .32 months to write out a report on one assignment and to submit it. Using this as a basis, it may be stated that:

8 assignments (1 hr.) should be completed in 2.5 months;
16 assignments (2 hr.) should be completed in 5.0 months;
24 assignments (3 hr.) should be completed in 7.5 months;
32 assignments (4 hr.) should be completed in 10.0 months.

This suggests the conclusion that, under normal conditions, a course of thirty-two assignments should be completed in a year or less, and that a course with fewer assignments should be completed in correspondingly shorter time.

The distribution of the number of reports received monthly from each student was studied to determine desirable limitations. Table II presents the frequency by which a given number of reports was received each month from the 116 students.

TABLE II

THE NUMBER OF REPORTS RECEIVED EACH MONTH FROM 116 CORRESPONDENCE STUDENTS**

Reports Per Month	Frequency	Reports Per Month	Frequency	Reports Per Month	Frequency
1	92	9	14	17	5
2	78	10	7	18	2
3	94	11	4	19	2
4	61	12	7	20	1
5	57	13	3	21	1
6*	36	14	2	22	0
7	16	15	4	23	0
8	29	16	4	24	2

**This table does not include the 226 months in which no reports were received.
*Median is six per month. Quartile range is three to ten per month.

Table II presents a wide variation in the number of reports received from a student within a calendar month. A few students completed a course of twenty-four assignments in one month. Receipt of fifteen or more reports from a student in one month occurred twenty-one times. At the other extreme, however, in a group of ninety-two only one report per month was received from a student, and in seventy-eight cases only two reports were received. The median of six reports per month by a student, when actively engaged in the work, and the semi-interquartile range of three to ten reports per month, suggest reasonable standards.

It should be noted that the median of six reports per month is for months of activity only. There were times when no reports were received from a student for a month or more. The aggregate number of months of inactivity for the 116 students was 226. Had there been no months of inactivity the average of 3.2 assignments per month previously computed would have been raised to 4.5 assignments per month (2,382 reports received in 521 active months).

Monthly lapses of inactivity lengthen the time to complete a course. The median number of months that inactive students remained inactive is four. Long lapses of inactivity occur. This is shown in Table III. The causes of inactivity are doubtless varied and numerous, but some are justifiable. A few long lapses of inactivity are due to a rule that correspondence courses must be discontinued while students are doing work in residence.

TABLE III

VARIATIONS IN NUMBER OF REPORTS BY MONTHS RECEIVED FROM STUDENTS IN CORRESPONDENCE COURSES

Students	No. of Reports	Grades	Reports by Months																						
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Long Time																									
B.P.	24	C	3	.	.	.	.	.	.	.	.	..	..	..	..	..	..	..	..	3	..	..	..	..	18
W.W.	24	B	1	1	.	.	.	.	.	.	.	..	4	..	5	5	..	..	..	..	..	..	4	..	4
L.H.	21	C	4	.	.	.	5	.	.	.	1	..	5	..	..	2	..	..	..	..	..	..	..	4	
M.F.	21	C	1	2	.	.	.	.	1	1	.	1	3	5	2	5									
C.P.	21	B	3	.	1	5	.	.	.	.	.	..	4	4	4										
Average Time																									
T.M.	21	B	3	5	4	2	4	2	1																
R.F.	24	B	1	4	3	2	4	5	5																
M.W.	21	A	1	5	8	5	2																		
C.C.	16	B	3	6	4	2	1																		
Short Time																									
J.C.	24	C	4	20																					
G.E.	24	C	8	16																					
M.R.	24	C	18	6																					
H.S.	24	D	24																						

When long lapses of inactivity occur, or when twenty-four reports from a teacher are returned within one month, the chances are that the quality of work is not what it would be if a more reasonable length of time were devoted to the work. In the accompanying list of sample records the grades are shown. The possible effect of extreme variations from a reasonable standard may be easily observed. The quality of work done on a course tends to decrease when the number of months to complete it becomes excessive. A low positive correlation of .08 exists between the time taken to complete the courses and the grades made. This is not especially significant, but it suggests the importance of restricting the time to fewer months than are sometimes given.

A comparison of grades, made by the 116 students, with the number of months of inactivity for each student gives a positive correlation of .14. This is not highly significant, particularly since the factor of irregular work is but one of several factors affecting the situation. But the fact that a positive correlation does exist, between inactivity and grades, suggests the advisability of removing the unfavorable influence that periods of inactivity have upon quality of work done.

The unfavorable influence of this factor may be seen, also, in the grade-point averages of certain groups of students. Students were grouped for this purpose on the basis of the number of months of their inactivity while pursuing their courses. In computing the grade-point average, use was made of the college standard of six-grade-points for each hour of grade A, four points for each hour of grade B, and two points for each hour of grade C. The data are as follows:

Number of Students in Group	Months of Inactivity	Grade Point Average
71	None	2.88
45	One or more	2.62
37	Two or more	2.48
23	Four or more	2.34

It appears from these data that the more inactive a group of correspondence students becomes, while taking college courses, the lower they bring their grade point average. The facts point to the conclusion that lapses of inactivity are unfavorable to quality of work done in a correspondence course, and the problem created is to maintain a high and even quality of work by reducing or eliminating the influence of this factor.

A few suggestions are offered as a possible solution of this problem.

1. Allowance should be made for unavoidable circumstances and time limits extended for just cause. Temporary postponement, however, should not be taken to mean freedom from creditable work.

2. The number of avoidable lapses of inactivity should be reduced to the fewest possible. This may be done by follow-up letters from the Extension office and by personal letters of encouragement from the instructor.

3. After a period of inactivity the student should be required to review the assignments completed in the course to insure greater continuity and unity in the work. A brief summary of the work done, or answers to review questions, may be written and returned. It may be advisable not to supply advanced assignments before the review work is submitted and approved by the instructor.

4. An instructor's information blank should be enclosed with the student's first report when returned to him. This blank should be filled out by the student and returned with his next report to the instructor. This report should inform the instructor of the student's plans, purposes, and conditions under which he works, so as to enable the instructor to guide the student intelligently, should lapses of inactivity or other unfavorable situations occur.

While it is desirable to avoid long lapses of inactivity as far as possible, it is also desirable to discourage the overly ambitious students from returning an excessive number of reports within a very short period of time. This is particularly applicable to the first assignments in a course. Before many reports are prepared, the first reports containing constructive criticisms should have been returned for the student's guidance. The upper quartile of ten reports per calendar month suggests a satisfactory maximum number, especially if the student is engaged in other time-consuming work. The median of six reports per month may be taken as a reasonable number of reports that the typical classroom teacher, under usual conditions, may be expected to return. This median should mean the total number of reports submitted, whether the student is taking one or more courses. The desirability of a teacher taking more than one correspondence course at a time may be questioned in view of the fact that teaching duties and personal health must be given first consideration.

POINTS IN SUMMARY

1. This study was based on 2,382 reports on assignments received from 116 correspondence students who completed their courses and who are teachers.

2. The calendar month was used to measure the degree of activity by which courses were pursued.

3. One-fifth of the students dropped their courses before completing them. Long lapses of inactivity occurred.

4. Long courses tended to be pursued more rapidly than short courses.

5. Twenty-four assignments made a course of fairly satisfactory length for most students.

6. The quality of work done on a course tended to decrease when the number of months to complete it became excessive.

7. The quality of work done on a course was affected unfavorably by periods of inactivity while the course was taken.

8. The average number of reports per student returned each month was 3.2. Exclusive of months of inactivity the average was 4.5.

9. The median number of reports per student per month was 6. The semi-interquartile range was from 3 to 10 reports.

10. A reasonable standard for length of time normally taken to complete a course was suggested by the median and the averages for the group studied. From four to six reports per month under usual circumstances was a reasonable standard. Under normal conditions it should not take longer than 6 to 9 months to complete 16 assignments (2 semester hours credit); 8 to 12 months to complete 24 assignments (3 semester hours credit); 10 to 15 months to complete 32 assignments (4 semester hours credit).

CONCLUSIONS

1. Teachers enrolling for a correspondence course should be encouraged to schedule their time for study, and to work upon the course continuously and regularly.

2. Teachers should be discouraged, by the College Extension Service and by appointed authorities, to undertake more work by correspondence than they can do well within the time they have available for such work. This applies, in general, to the rapidity with which a course is pursued and the number of courses undertaken simultaneously.

3. Every effort should be made by instructors and by the Extension Office to prevent students from becoming discouraged and from discontinuing their work before the course is completed.

4. Teachers who excessively crowd their work in correspondence courses, to the neglect of their teaching duties, should be warned by the Extension Service. Control can be secured when necessary by limiting the number and frequency of advanced assignments sent to the student. To administer this effectively there should be information on file as to the amount of time the teacher has to devote to his correspondence course.

5. Monthly or periodic lapses of inactivity in connection with the course should rarely, if ever, occur. When necessitated by illness or unavoidable circumstances, the reason for delay should be sent promptly to the college authorities so as to maintain an understanding relationship between student and college teacher.

6. When a correspondence student enrolls for full-time work in residence or fails for any cause to return reports on assignments for a period

of time, he may be classified as inactive until he returns to his correspondence course again.

7. When study is resumed, after a period of inactivity, the instructor should receive reports, such as written reviews, summaries, or answers to test questions, to insure creditable continuous work on the course.

8. An understanding relationship and intelligent guidance will be greatly aided by an instructor's information blank filled out and returned by the student with one of his first reports.

9. Various factors, not included in this study, influence the length of time taken to complete a course. But, considering the factor of length of the course alone, under normal conditions, the time to complete a course will vary with its length. Time extension should be determined by the facts and the merits in each case. The number of assignments remaining, the length of the course, the reasons for delay and other causes, necessitate variability in amount of time allowed for completing a course.

10. A college teacher should be limited in the number of correspondence students assigned to him. If this limit includes students during periods of inactivity, the college is sometimes prevented from rendering additional service that might well be given.

TESTING FOR COMPREHENSION

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Standardization and refinement of testing materials in the various school subjects has proceeded rapidly in the past few years. Validation —determination of how far the tests actually measure the outcomes they are purported to measure—has not kept pace.

Especially is this true in the field of testing for the comprehension of ideas or of principles in the content subjects, such as science, history, and the like, on the high-school level. Much is said about the necessity of teaching in such a way as to establish understandings rather than the rote recall of more or less isolated facts, but tests which actually follow up and determine the effectiveness of such teaching are lacking. Various studies have shown, quite positively, that tests given, even by the best teachers in the content subjects, are predominantly fact recall.[1] Prepared tests now on the market show this same tendency.

There are probably two good reasons for this condition. First, it is no easy matter to formulate tests which involve comprehension alone, without mixing in recall items for padding if for no other reason. Even though recognizing the problem, the average teacher does not seem to have the time nor the training necessary to formulate this type of test. Moreover, there is very little in the current educational literature which treats of this problem. This literature states quite emphatically that tests should include "thought questions," but there it stops. Second, teachers fail to realize that this problem actually exists. Tests are formulated on the spur of the moment without a thought for validity.

Some test specialists feel that, even though the present tests seek recall of information, they do indirectly test for comprehension, since the recall of information, in a way, involves comprehension. A favorite form of question is to state a law, and then ask the student for the name of the law or of the person who first formulated it. One is moved to ask what relationship the correct answering of such a question bears to the student's ability to use the law! It certainly does not involve his actual use of the law, and one would be generous to say that the method is

[1] Rich. "Mental Processes Required in Examinations in Chemistry." *Journal of Chemical Education*, III, pp. 445-49. Also a later study on pp. 525-28, same volume.

indirect. It would be more exact to say that it is entirely beside the point! American democracy is sorely in need of a thinking populace, but such requirements in the schools are not producing thinkers. More direct methods are unquestionably necessary.

When one comprehends or understands a proposition, he is able to see its relationship to situations in which it is used. Seeing this relationship enables him to solve new problems which involve this proposition. A test which directly proceeds to determine the student's comprehension of an idea is one which gives him opportunity to solve new problems involving that idea, and gives the tester the opportunity to study in an objective way the student's performance. Such problems are not necessarily mathematical, and in most cases should not be mathematical, even in the sciences.

A test which proceeds directly to determine comprehension, then, is one in which the items will either present series of facts to the student and call for his interpretation of these facts, or it will present a situation and call for prediction of the outcome when certain factors are altered or others are brought to bear. It is necessary to realize that each item must present certain facts to the student, rather than ask for his recall of these facts.

To make this clear, suppose the student is to be tested for his understanding of the Mendelian laws of inheritance as applied to hybridization in the first and second generations. A series of statements may be used in which true statements are to be left as they are, and false statements are to be changed in such a way as to make all statements true, such as the following:

a. If red hair is dominant, to produce offspring having red hair both parents must have red hair.
b. A purebred white individual is crossed with a white individual whose parents are one purebred black and one purebred white. The offspring are all white. White is therefore recessive.
c. If yellow color is known to be recessive to blue in a certain flower, a flower of this kind which is yellow will be known to be purebred.
d. If black is dominant, and a purebred white chicken is crossed with a purebred black, half the offspring will be white, one-fourth black, and one-fourth spotted.
e. The mule is a cross between a donkey and a horse. Short ears appear to be dominant in this case.

Again, one might make use of the matching type of test and require the student to place in each parenthesis the number of the second part-

sentence which makes a true statement when fitted to the first part-sentence which the parenthesis follows. A group of this sort would be shown in the following:

a. If purebred Duroc Jersey hogs, which are red, are mated together, the offspring ( )
b. If red is dominant in cattle, the offspring resulting from the crossing of Devons (red) and Galloways (black) ( )
c. A white wild flower was observed one season among others of its kind which were all blue. The next season more whites than blues were found in this patch. Whiteness ( )
d. Black Minorca hens were mated with a Rhode Island Red rooster, and the eggs were hatched. If black were dominant, the offspring from the mating of the chickens produced from these eggs ( )

1. will all be hybrid black.
2. will be three-fourths purebred black and one-fourth red.
3. will be three-fourths red and one-fourth black.
4. must have been recessive.
5. will all be purebred red.
6. must have been dominant.
7. will all be spotted.
8. will be all hybrids; half black and half red.
9. will all be hybrid red.
10. must not have been inheritable.
11. will all be purebred black.
12. will be three-fourths black and one-fourth red.

Other forms may be employed, using the newer types of tests, such as the selective response type, the completion type, the ordinary true-false type, the short answer type, the yes-no type, and many others. The greater the variety, the more interesting the test to the student. The discussion type may also be used, but results are too inexact and elusive to be really satisfactory. When one type is selected, however, it should be used throughout the entire test.

It should be pointed out that in order to test one's comprehension of a principle there should be several test items directed toward that one principle, as shown above. One item might be used, but chance would enter in to too great an extent. It is essential that the student should be unfamiliar with the particular situations presented, so that he will have to think them out for himself. If he had already heard these identical situations discussed in class, his response would be merely on the basis of rote recall. Several items should be used in order to eliminate the chance that (1) some of the items may have actually been presented to some of the pupils beforehand; (2) some of the items might be suggestive of the right answer and not require thinking other than the following out of a hint; (3) pure chance might bring about a right

response; (4) some items might be unsuitable for various reasons, so if the test has been given and such items found, they may be omitted and still leave enough test items to adequately handle this particular principle.

In using a test of this sort for diagnostic purposes—that is, for determining what principles the child comprehends and what ones he does not—all items of the group should be correctly marked by the pupil before his performance would be considered satisfactory and as ample evidence of comprehension. More than one error on such a group, provided the test items are suitable, means that the child is not consistently using the principle, and usually indicates lack of clear comprehension. The mechanics of the test should not stand in the way of giving correct responses, so the procedure he must follow should be made clear to him, and he should be given plenty of time in which to finish. He should have preliminary practice, and should realize that he is expected to get every item right. One error out of four or five items would lead the teacher to think that the performance shows comprehension, but this error should be followed up to see if it really shows lack of understanding of the principle involved, or if the item were bad for some reason. Some of these reasons may be; (1) carelessness and lack of effort on the part of the student; (2) the use of words whose meaning the child does not know; (3) failure of the item to present all facts needed for proper solution; (4) the requiring for solution a knowledge of other principles which were not involved in the work required of the child, and therefore, which should not have been included in the test. If, for these or other reasons other than the lack of comprehension, it is found that the pupil made the error, his performance may be considered satisfactory; otherwise not.

Now to prepare an entire test, which covers several related principles all dealt with during the study of a certain body of subject matter, one will use several sections of which either of the groups presented above would have been one. If one's course is organized on the "unit" plan, it is merely necessary to determine what are the different, related principles involved in the unit, and when these have been determined to devote a section of the test, composed of four, five, or six items, to each of the principles whose comprehension is sought. If the course is not divided into units, chapters may possibly be used. Then in examining the papers after the test has been given, the teacher should consider each

section as a whole, and if a score is to be given it should be on the basis of the number of "sections" (corresponding to principles) that are satisfactory rather than on the basis of the number of test items that were right.

For diagnostic purposes, it will be seen that this arrangement makes it clear to both teacher and student just where difficulty has been encountered, and it is to be hoped that before leaving this portion of the course, the teacher would make an effort to clear up in the student's mind those things that are shown not to be clear, and probably follow this up by administering a second test form.

The foregoing plan has thus been presented as a possible device by which teachers and other test makers may proceed directly to determine, in the students' minds, the presence or absence of a comprehension of the principles involved in the material taught. It may seem at first glance that one-hundred percent correct performance on material of this sort may be asking an impossibility of students on the high-school level. And, indeed, it may be a condition not attained in the classroom as usually conducted. But it is a fairly easily developed situation, as is evidenced by the fact that such requirements are strictly enforced in classes under the writer's direct supervision, and intelligence tests show that the students in these classes are not unusual.

But whether or not the "follow up" phase is employed, the plan is a fairly satisfactory device for testing comprehension. It is necessary, of course, that the teacher does not lose sight of the fact that comprehension is sought. The score made on the test is not the essential outcome of the test. The question to be answered is, "What principles does the student give evidence of comprehending, and what ones does he fail to comprehend?"

A COMPARATIVE STUDY OF THE PHYSICAL GROWTH OF DULL CHILDREN

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THE relation between mental and physical development has attracted the attention of educators for several years. It seems that the rate of growth sets a limit to learning beyond which the educator cannot go. The studies of Porter and other pioneers in this field indicate that learning is not only conditioned by physical growth, but that there is a positive relationship between mental and physical development. Other studies indicate that mental and physical retardation have a direct bearing on each other. Because of the limited space, we shall not attempt to make a complete survey of all the literature relating to this problem, but shall mention only some of the outstanding studies.

In 1888, Shuttleworth[1] studied the health and development of idiots and compared the results with mentally sound children of the same age. He found a positive relationship between mental and physical traits. About the same time Tarball[2] studied the height, weight, and relative growth of normal and feeble-minded children, and reported a close relationship between physical and mental development. Although this study was based upon a small number of cases, the results seemed to indicate a definite trend between mental and physical growth. Later Gratsianoff[3] made a study in Russia which showed that larger children were more successful in school work than smaller ones of the same age. Sack[4] rejected the former study and made a similar investigation, using 4,245 boys ranging through grades I-VIII. This study showed that the boys who were taller and of larger chest measure were more successful in school work as measured by school marks. Later in 1893 Porter[5]

[1] Shuttleworth, G. E. "The Health and Development of Idiots Compared with Mentally Sound Children of the Same Age." Proceedings Assn. Med. Officers of Am. Inst. for Idiotic and Feeble-minded Persons, 1876-88.

[2] Tarball, G. G. "On Height, Weight, and Relative Growth of Normal and Feeble-Minded Children." Proceedings Assn. Med. Officers of Am. Inst. for Idiotic and Feeble-minded Persons, 1876-88.

[3] Gratsianoff, N. A. "Data for the Study of Physical Development in Childhood." St. Petersburg, 1889.

[4] Sack, N. "Uber die korperliche Entwicklung der Knoben in den Mittelschulen maskaus." Zach. fur Schulgesundheitspflege, 1892, VI, pp. 649-663.

[5] Porter, W. T. "The Physical Basis of Precocity and Dullness." Transactions Academy of Science of St. Louis, 1893, pp. 161-181.

made a rather extensive study using 33,500 cases of St. Louis school children. He studied height, weight, length, breadth of head, and chest capacity. He claimed that weight was the best single measure of physical development, and found a positive relationship between weight and school grades. For example, the eleven-year-old children in the fifth grade weighed more than those of the same chronological age in the fourth grade. This study seems to indicate that dull or retarded children are lighter than the accelerated or normal child. In 1895, Gilbert[6] found that dull children were slightly shorter than the average in height. West[7] made a study which seemed to indicate that children whom teachers estimated below the average in school work were taller and heavier. This might be explained by the fact that retarded children are older chronologically than normal or accelerated children. MacDonald[8] made an extensive investigation on 20,000 children, divided into average, dull, and bright groups. He found that the bright groups were slightly superior in stature, sitting height and weight, but the difference was so variable that it was of little, if any, significance. Beyer[9] in a study on *Precocity and Dullness,* confirmed the findings of Porter. Schmidt[10] made an investigation including 4,260 girls from ages 5 to 15. His study indicated that pedagogical attainment goes hand in hand with better physical development. Wylie[11] found that feeble-minded children were shorter and weighed less than normal children. Rietz[12] studied 20,400 boys in the Hobere Schule of Berlin. His findings indicated that brighter children were better developed physically than the retarded ones. Goddard[13] studied feeble-minded children in twenty institutions. He concluded that mentally defective children are heavier at birth, but in the case of morons there is an arrest of growth earlier than with nor-

[6] Gilbert, J. A. "Researches in the Mental and Physical Development of School Children." Studies from Yale Psych. 1895, II, pp. 40-100.

[7] West, G. M. "Observation of the Relation of Physical Development to Intellectual Ability." *Science,* 1896, pp. 156-159.

[8] MacDonald, A. "Experimental Study of Children." Reprint of the Commissioner, U.S. Bureau of Education, 1897-98, pp. 989-1204, 1281-1390.

[9] Beyer, H. G. "Relation Between Mental and Physical Work." *American Physical Education Review,* 1900, pp. 149-160.

[10] Schmidt, F. A. and Lessenich, H. H. "Uber die Bezichung Zwischen Korperlicher Entwicklung and Schulerfolg." Zsch. fur Schulgesundheitspf, 1903, pp. 1-7.

[11] Wylie, A. R. T. "Contributions to the Study of the Growth of the Feeble-minded in Height and Weight." *Journal of Psycho-Asthnen.,* 1903, pp. 1-7.

[12] Rietz, E. Korperentwicklung und geistige Begabung." Zsch. f. Schulderundheitspf, 1906, pp. 65-98.

[13] Goddard, H. H. "The Height and Weight of Feeble-minded Children in American Institutions." *Journal Mental and Nervous Disease,* 1912, pp. 217-235.

mal children. In general, he found a positive correlation between physical growth and mental activity. Baldwin[14] studied 861 boys and 1,063 girls in elementary and high schools, taking consecutive measurements on the same individuals in height and weight, together with school marks. He found that tall, heavy boys and girls were superior physically and farther along in mental maturity as shown by progress, than short, light children. DeBusk[15] studied the height of retarded children and concluded that mental and physical development go hand in hand. Terman[16] studied 623 gifted children selected on the basis of the Stanford Revision of the Binet-Simon Test. The anthropometric measurements were made by Baldwin, who sums up the investigation as follows: "The results of this investigation show that the gifted group as a whole is physically superior to the various groups used for comparison."

After reviewing the investigations which have been made we are inclined to think that there is a positive relationship between mental and physical development, although there are varied opinions as to the amount and its significance. The majority of the studies indicate that individuals of superior intelligence have a better chance of being superior in physical growth. There is a strong tendency in the field of education to demand more objective measurements in determining the intelligence rating or classification of the subjects. This factor has been neglected in most of the previous studies. There is only one way in which to study and answer the question of the relation between mental and physical development; and that is through successive physical and mental examinations on the same children for a period of years.

The data for this study were obtained from the Harvard Growth Study under the direction of Dr. Walter F. Dearborn,[17] to whom the writer is greatly indebted. (A full and comprehensive description of the different measurements and the methods used in obtaining these results is given by Latshaw.)[18] The mental and physical measurements

[14] Baldwin, B. T. "Physical Growth and School Progress." Washington: U. S. Bureau of Education, 1914, No. 10, pp. 212.

[15] Debusk, B. W.. "Height, Weight, Vital Capacity and Retardation." *Pedagogical Seminary.* March 1913, pp. 89-92.

[16] Terman, L. M. *Genetic Studies of Genius,* Stanford University Press, 1925, pp. 133-135.

[17] Dearborn, W. F. "The Study of Individual Abilities—The Normal Child." *School and Society,* XVIII, Sept., 1923.

[18] Latshaw, H. F. *The Measurement of Physical Growth.* Thesis, Graduate School of Education, Harvard University, 1925.

of the same children were made at consecutive periods of approximately twelve-month intervals, by individuals specially trained for this type of research. This is of vital importance, because both mental and physical measures should represent as nearly as possible the same stage of growth on each individual for each year. In selecting the cases for this investigation, North-European children from public schools were chosen who had an average IQ below ninety as measured by the Dearborn Group Intelligence Test for six consecutive years. This study was based principally on dull children whose IQ's fall between 70 and 90, with only 5 percent below 69. Table I gives a fair perspective of the group used in this investigation.

TABLE I

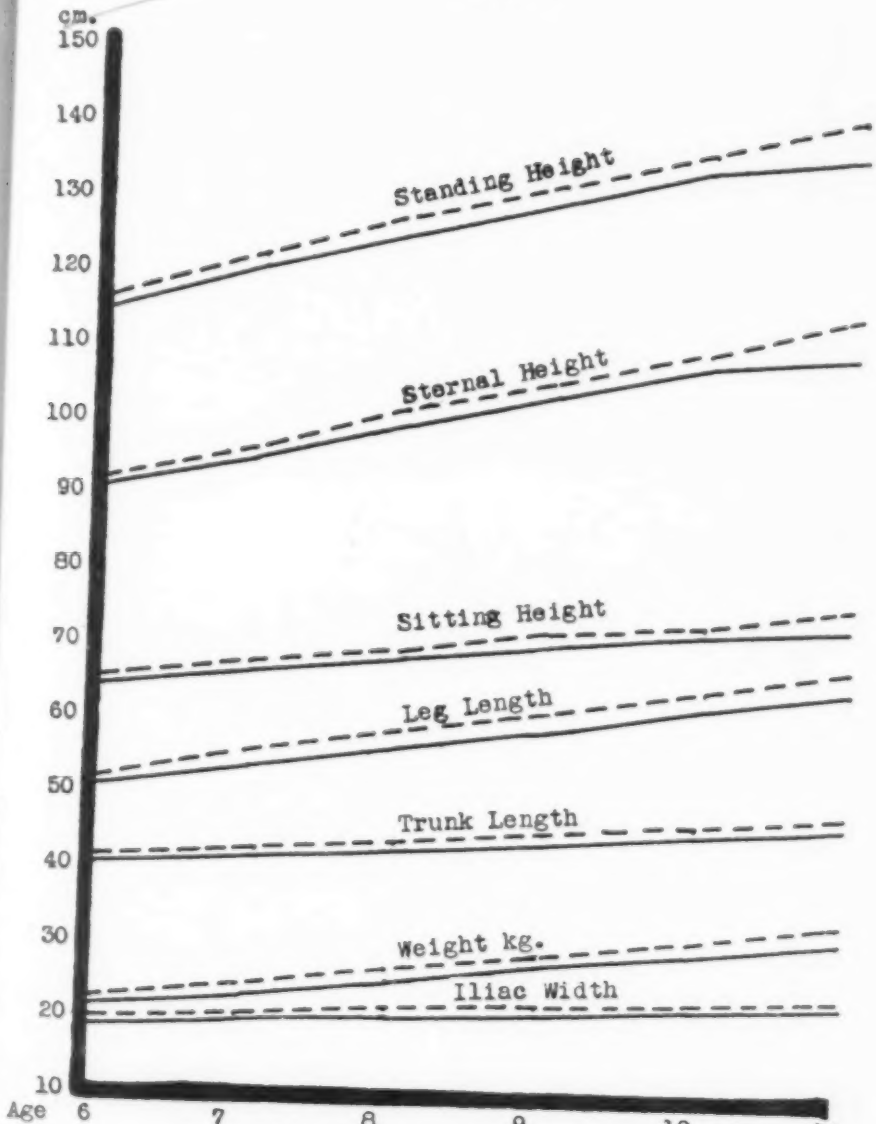
	Boys	Girls	Total
No. of cases	154	119	273
Ages	6-12	6-12	6-12
Range IQ	60-90	51-90	51-90
Median	81.7	83.7	82.9
Q-3	86.5	86.9	86.7
Q-1	76.8	79.5	78.2
Q	4.9	3.7	4.3

The writer realizes that the line of cleavage between dull and normal children is rather vague, and is probably below an IQ of 70; but it is a consensus of opinion that all children between 70 and 90 IQ are dull, and that probably the demarcation line, on the results of group tests, falls several points below 70.

The norms of the anthropometric measures used in this study were established by Latshaw, who took a large number of cases according to age, race, and sex from data obtained from the Harvard Growth Study.

There are many problems which have grown out of this study that the writer will not attempt to answer. For example, we do not know whether the child grows consistently and at the same rate between the annual measurements. Nor do we maintain that the findings in this investigation will hold true for individual cases, but these data should give a fairly accurate trend of the group. We would, also, like to point out the fact that these children have been selected from the public schools entirely by the use of group intelligence tests. We are aware that the differences between the dull and normal children, shown in Graphs I and II, are comparatively small, but they are fairly consistent from the age of six through eleven. In light of the above problem, we will have to consider that the differences in intelligence, as shown in Table I, is

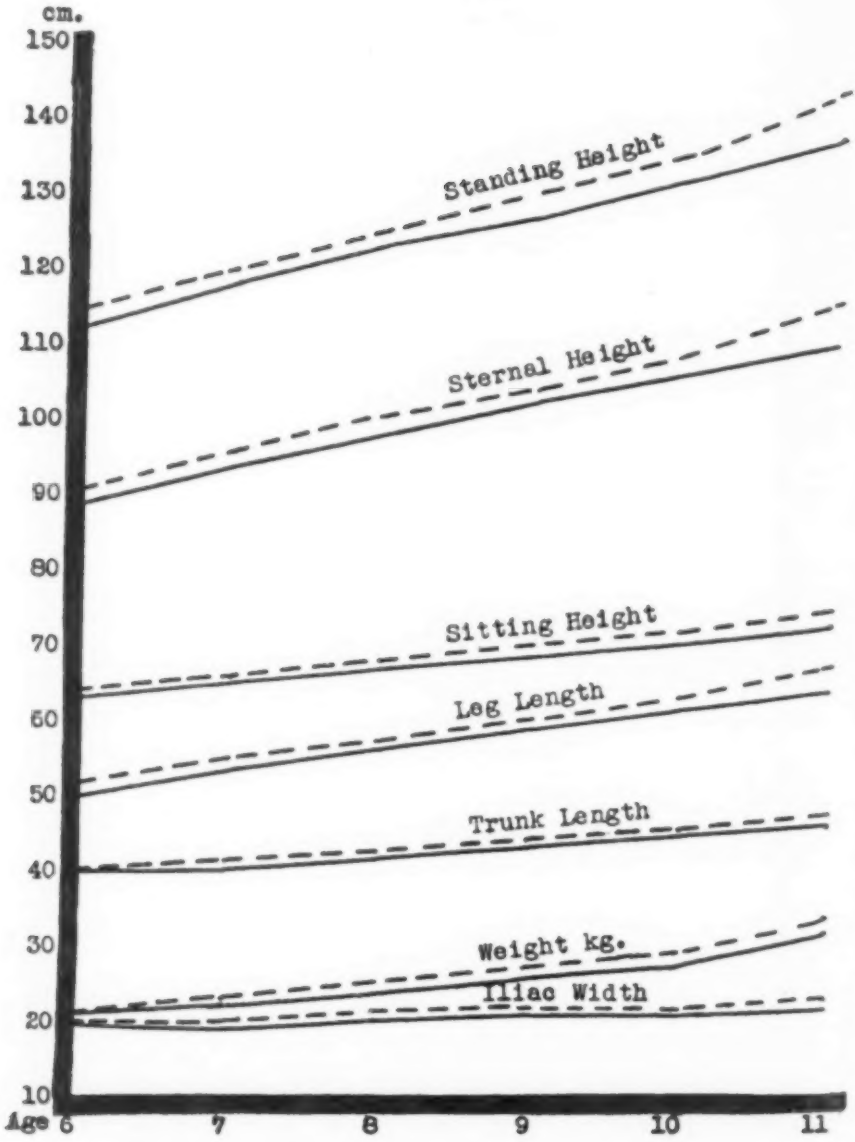
Graph 1



Comparison of the Medians of Normal and Dull Boys in Physical Growth.

Normal — — —
Dull ———

Graph II



Comparison of the Medians of Normal and Dull Girls in Physical Growth.

Normal - - - -
Dull ————

not wide; the median being only seven points below the line of demarcation for normal children.

The dull children are below the normal in all measures of physical growth from the age of six through eleven, as shown in Graphs I and II, except for the girls at the age of six in trunk length, and in iliac measure. The differences at the age of six might be explained by the small number of cases as shown in Table II. The growth curves of the normal children seem to indicate acceleration at the age of eleven, while the dull children remain fairly constant and, if anything, show a decline in most of the traits measured. Due to the small number of cases at the age of eleven we are not able to make any definite prediction as to a retardation of the dull children at this age. The development of the dull children during adolescence is an interesting point to speculate upon. The growth curves coincide fairly well with the concomitant theory up to the age of ten. But we will have to wait for available data on these children, to continue this study through the adolescent period. The growth curves for both North-European boys and girls show that children who are subnormal in intelligence are subnormal in physical growth.

For the lack of space we are not able to include all the tables showing the first and third quartiles, but the data show that the first and third quartiles, of the dull children from the age of six, through eleven, are below normal in all measures, with the exception of trunk length of boys at the age of six. The semi-interquartile range is shown in Table II.

TABLE II

SEMI-INTERQUARTILE RANGE

	BOYS						GIRLS					
Ages	6	7	8	9	10	11	6	7	8	9	10	11
Number of Cases	34	77	100	106	86	42	35	60	69	83	57	31
Standing												
Normal	3.5	3.5	3.9	3.9	4.6	4.0	3.9	3.6	3.6	3.6	4.3	5.6
Dull	3.9	4.0	4.0	3.9	4.1	4.6	3.1	3.1	4.0	3.9	4.4	4.3
Sternal												
Normal	2.8	3.0	3.4	3.3	3.9	4.2	2.9	3.2	3.3	3.3	4.0	5.3
Dull	3.4	3.2	3.6	3.5	3.1	3.7	3.0	2.7	3.1	3.6	3.7	3.9
Sitting												
Normal	1.7	1.8	1.7	2.0	2.1	1.8	1.8	1.7	1.7	1.9	1.7	2.2
Dull	1.9	1.8	1.7	1.8	1.9	2.0	1.8	1.5	1.8	1.8	1.9	1.9
Weight												
Normal	1.6	1.9	2.2	2.4	2.9	3.2	1.9	1.9	2.3	2.7	3.5	4.4
Dull	1.7	2.0	2.6	2.1	2.6	3.5	1.4	1.7	1.9	2.7	2.5	3.4
Leg												
Normal	2.2	2.3	2.5	2.5	2.7	2.4	2.5	2.3	2.4	2.4	3.0	3.4
Dull	2.7	2.4	2.7	2.6	2.4	3.0	2.3	2.5	2.4	3.1	3.1	3.3
Trunk												
Normal	1.8	1.4	1.3	1.5	1.8	1.5	1.5	1.4	1.4	1.5	1.5	1.9
Dull	1.9	1.4	1.4	1.3	1.5	1.3	1.3	1.3	1.4	1.6	1.7	2.1
Iliac												
Normal	.9	.8	.8	.7	.9	.8	.9	.9	.8	1.0	1.0	1.0
Dull	.8	.9	.9	.9	1.1	.9	1.0	.6	.8	.9	1.0	.9

TABLE III

RELIABILITY OF THE DIFFERENCE OF NORMAL AND SUBNORMAL NORTH-EUROPEAN BOYS

Age	Med. Diff.	P.E. Diff.	D÷P.E. Diff.	Chances in 100
		Standing Height		
6	1.6	.84	1.90	90
8	2.7	.54	5.00	99
10	2.1	.74	2.83	97
		Sternal Height		
6	1.0	.74	1.35	82
8	1.6	.53	3.01	98
10	1.4	.67	2.08	92
		Sitting Height		
6	0.4	.47	0.85	72
8	0.7	.25	2.8	97
10	0.8	.34	2.4	95
		Weight		
6	0.5	.37	1.35	82
8	1.2	.35	3.43	99
10	1.8	.58	3.1	98
		Leg Length		
6	1.3	.59	2.20	93
8	2.0	.37	5.13	99
10	1.6	.43	3.72	99
		Trunk Length		
6	.2	.42	.47	63
8	.3	.19	1.56	85
10	.1	.29	.34	59
		Iliac Width		
6	.8	.15	5.33	
8	.6	.14	4.29	99.7
10	.1	.19	.42	61

TABLE IV

RELIABILITY OF THE DIFFERENCE OF NORMAL AND SUBNORMAL NORTH-EUROPEAN GIRLS

Age	Med. Diff.	P.E. Diff.	D÷P.E. Diff.	Chances in 100
		Standing Height		
6	2.5	.89	2.78	97
8	2.5	.78	3.20	98.5
10	3.4	.96	3.54	99
		Sternal Height		
6	2.0	.66	3.18	98.5
8	1.8	.49	3.67	99
10	2.5	.76	3.28	99
		Sitting Height		
6	.9	.39	2.31	94
8	1.1	.27	4.07	99
10	1.6	.37	4.32	
		Weight		
6	.9	.32	2.51	95
8	1.8	.32	5.62	
10	1.8	.58	3.10	98
		Leg Length		
6	1.5	.51	3.0	98
8	1.8	.39	4.61	99
10	1.1	.52	2.12	92
		Trunk Length		
6	.1	.9	.11	53
8	.6	.86	.7	68
10	.4	.33	1.21	79
		Iliac Width		
6	.6	.79	.76	69
8	.3	.65	.46	62
10	.4	.15	3.3	99

The previous findings have shown a consistent difference between the dull and normal children. The reliability of the study is further strengthened by studying the P.E. (diff.) between the medians of the two groups. The method of obtaining the P.E. (diff.) was taken from Garrett.[19] The probable errors were calculated for ages six, eight, and ten, which give a fair index for all ages, as shown in Tables III and IV.

The average difference of boys is 2.12 times the P.E., which means that this difference will hold true in 92 out of 100 chances. The girls show that the average difference is 2.98 times the P.E., which means that the changes are 97 out of 100 that the differences will remain true for a larger number of cases. There is a positive difference between the normal and dull groups for practically all measures, and the consistency further substantiates the differences shown. Tables III and IV also show that at ages eight and ten the reliability is greater, due to the larger number of cases used at these ages. The differences between the normal and dull children are fairly well established by the probable error of the differences which corroborates the comparisons of the medians of the two groups. The reliability of the differences in physical growth of the normal and dull children are further substantiated by a study of the overlapping of the groups, or the percent of the dull children below the median of the normal children, as shown in Table V. The average percentage of the dull children in all the physical traits measured, shows a consistent difference greater than chance. The reliability in terms of overlapping, as well as the other statistical measures, seems to substantiate the fact that children who are below normal in intelligence are also below normal in physical growth.

The results of this study and previous investigations indicate that the dull child is not only handicapped mentally, but he is penalized in physical growth. Since growth is not dependent on any one factor, but on a multiple of different influences, the school should consider physical growth as a factor in the classification, instruction, and promotion, especially when the child deviates widely above or below the normal growth for his age.

SUMMARY AND CONCLUSIONS

1. The majority of the previous studies indicate that there is a positive relation between mental and physical growth.

[19] Garrett, H. G. *Statistics in Psychology and Education*, pp. 135-137.

TABLE V

PERCENT OF DULL CHILDREN BELOW THE MEDIAN OF NORMAL CHILDREN IN PHYSICAL GROWTH

Age	Standing		Sternal		Sitting		Leg Length	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
6	55	70	60	90	78	60	62	62
7	62	59	53	63	59	66	68	58
8	60	71	67	86	62	67	66	66
9	66	82	65	60	65	66	60	66
10	70	68	72	66	63	69	64	62
11	71	81	77	81	72	76	72	74
Av.	64	72	66	74	67	67	65	65

	Weight		Trunk Length		Iliac Width	
6	58	67	47	52	60	27
7	62	64	59	68	52	73
8	68	80	57	60	68	61
9	63	66	57	63	55	68
10	64	67	54	58	65	58
11	63	71	67	72	75	70
Av.	63	69	57	62	63	60

2. Most of the previous studies have been based upon subjective measures, such as teachers' marks and estimates in selecting the children for a study of intelligence and physical growth.

3. This study shows that group tests are not only objective measures but are fairly reliable in selecting children for a scientific study of growth.

4. Dull children are below normal in all measures of physical growth from the age of six through eleven, except the age of six in trunk length, and in iliac measure for the girls.

SCHOOL RECORDS OF ILLNESSES AT VARIOUS AGES

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IN the March number of the *Journal of the National Education Association* Surgeon General Hugh S. Cumming of the United States Public Health Service published an article in which he analyzed the causes of absence in the elementary school. Since definite changes in the frequency of certain types of diseases appear in the data it seems worthwhile to carry his table downward into the preschool years.[1]

The nursery school data presented here are taken from the records of the Institute of Child Welfare at the University of Minnesota for the months of September through December 1926, January through December 1927, and January through November 1928. Children from age one year 11.5 months to two years 11.4 months are considered as being two years old. Since Cumming's figures are calculated at "age at nearest birthday" the mean age of nursery school children classified at a given age is higher than that for the elementary school pupils. The general trend of the figures, however, is not affected by this difference. The nursery school figures are based on a total registration (the sum of the total number of days on which each child was registered) of 2925 for age two, 5228 for age three, and 4881 for age four. The nursery school data, the elementary school data, and data taken from the Hagerstown Morbidity Studies of the U. S. Public Health Service are combined in Table I.

TABLE I

PERCENTAGES OF ILLNESSES DUE TO VARIOUS CAUSES

Disease \ Age	Hagerstown Study	Nursery School			Elementary School								
	0–4	2	3	4	6*	7	8	9	10	11	12	13	14
	%	%	%	%	%	%	%	%	%	%	%	%	%
Respiratory	58	69	74	62	52	51	51	48	50	50	45	48	45
Infectious	22	18	13	18	11	11	6	3	2	1	1	0	1
Digestive	10	2	3	6	8	9	10	12	9	10	13	10	11
Headache, neuralgia	0	0	0	0	5	7	10	13	15	16	17	17	16
Earache	2	2	1	1	4	3	3	3	2	2	1	1	1
Toothache	0	0	0	0	4	4	5	5	6	6	5	7	5
Other illnesses	8	9	9	14	16	16	16	16	17	16	18	17	21

*"and under"

[1] The author is indebted to Dr. Cumming for a copy of the data from which the curve in that article was drawn. All computations on the older children in this paper are taken from those figures which he was kind enough to furnish.

From Table I it is evident that as age increases the relative importance of certain illnesses, as causes of absence from school, increases whereas the importance of other illnesses decreases. Respiratory diseases account for approximately half of the absences through the elementary school period with some little decrease after age eleven. It is possible that the definitely larger percentage of respiratory diseases from ages two through four may be in part due to a more strict exclusion of children with colds from the nursery school. If we take this point into consideration, we must at the same time acknowledge that there is also less opportunity for these children to contract a cold from other children in the school. We have, therefore, apparently increased the number of absences due to respiratory diseases by counting even minor colds, but we have at the same time reduced the number of possible exposures in the school and, therefore, probably reduced the number of children who would be excluded even from public schools on account of serious colds and other illnesses. It is impossible, then, to say from these data whether or not the children from ages two to four are or are not more subject to respiratory diseases. When we compare the children recorded in the Hagerstown study with those absent from elementary school, we find the percentage of respiratory diseases somewhat larger in the Hagerstown group. But perhaps it is no larger than the elementary school record would be if that record included colds suffered but not a cause of absence. We have then, the clearly higher percentage of respiratory difficulties in the nursery school group, and we are forced to conclude that the higher percentage is due either to the more rigorous climate in Minnesota or to the possibility that the nursery school considers as "colds" slight indispositions that the home does not consider, or that the inclusion of children less than two years old in the Hagerstown group lowers the percentage sufficiently to make the figure misleading when taken as applying to children between two and four.

In the case of the infectious diseases we have, except for a few inversions, a steady and marked decrease in frequency with advancing age. This decrease is probably due to two reasons: an increased natural immunity to certain diseases with advancing age, and an immunity resulting from the actual experiencing of the disease. The higher figure for infectious diseases in the Hagerstown group may be due to the fact that the nursery school group is selected for good physical condition, or it may mean that the nursery school saves many children from exposure to contagious diseases. It should not be taken as indicative of a higher incidence of contagious diseases below the age of two. The reader must

bear in mind the fact that Table I is based not upon frequency of the various diseases but upon the percentages of illnesses due to various causes. We may thus compare the Hagerstown and the nursery school groups and say that respiratory diseases made up a greater part of the sickness, and infectious diseases a lesser part in the nursery school than in the Hagerstown group, but we cannot flatly state that the nursery school had more actual illness due to respiratory trouble than did the other group.

We find digestive disturbances generally increasing with the age of the child, perhaps due to the relaxing of adult supervision over the food consumed. The slight importance of digestive disturbances in the nursery school group is doubtless due to the selection of physically-fit children and also to the fact that these children receive approximately half their food under the direction of a dietitian.

Headache and neuralgia show a fairly steady increase through the years. This, it seems to the writer, may be due to any one of three causes: (1) Headaches due to eyestrain are much less likely to develop during the years when the child is not using his eyes for close work. (2) Headaches due to digestive upsets might be expected to follow the frequency of the digestive difficulties, and, as just noted, such troubles increase with age. (3) Headaches which are assumed or encouraged as excuses for insufficient preparation of lessons or as evidence of a "frail" or "nervous" constitution would not appear until an age when such aids and aims were comprehended by the individual.

Earaches show little change other than a slight, steady decrease from age six to age thirteen. Toothaches do not appear as a cause of absence before the age of six and after that show little variation.

Another fact which is brought out by a comparison of the two sets of data is that the total number of absences on account of illness gradually decreases with advancing age. The total absences per thousand children per school year reported by Cumming for ages six to fourteen are 2848, 2779, 2719, 2540, 2132, 2300, 2107, and 2075 respectively. These figures, except for an inversion at age twelve, show a steady decrease. Since Cumming's data do not state the number of days in the school year, we cannot compare his figures directly with our nursery school data. We can, however, calculate our nursery school records to show the percentage of possible days of attendance (number of school days multiplied by the mean number of children registered). Such a calculation gives the following percentages of children absent on account of illness: age two, 23.0 percent; age three, 17.8 percent; and age four, 16.5 percent. These percentages, as in the case of the elementary children, show a steady

decrease in absences due to illness with advancing age. The Hagerstown studies indicate a higher rate of illness for ages 0-4 than for ages 5-9, but since the data are not given for the separate years, we cannot use them to bridge the gap between the nursery school and the elementary school figures.

The Hagerstown study gives the ratio of illnesses from all causes for males and females at ages 0-4 as .90. When the data for the nursery school illnesses is calculated, the ratio of illnesses of girls to that of boys is .79. Both studies indicate, therefore, fewer illnesses among young girls than among boys. The Hagerstown study shows that after age 10, this ratio turns in favor of the boys.

If we analyze the nursery school data still further in respect to infectious diseases, we find chicken-pox as the cause of more absences than all the other contagious diseases taken together. Then come mumps, whooping-cough, and other diseases with very small percentages of absence attributed to each. It should, perhaps, be acknowledged that the rate for measles would undoubtedly have been higher if the parents had not chanced to know of the exposures and if they had not been sufficiently coöperative to keep their children at home for the entire incubation period.

From the data presented in this paper it seems clear that the nursery school should be on particular watch for respiratory infections and contagious diseases, since absences due to other causes are practically negligible. Any attempt to reduce the incidence of these difficulties must be concerned with increasing the child's immunity either through inoculations or through building up the general physical condition and preventing exposure to infections. The higher grades in the elementary schools also have many absences on account of respiratory troubles, but as the grades advance digestive disturbances and headaches become more and more important as causes of absences. There should be a field for the instruction of these older children in the prevention of spreading colds, in the advisability of a reasonable diet, and in the significance of the headache as a symptom of eye or digestive trouble. The part played by the headache as an alibi for work not done should not, of course, be overlooked by the teacher.

For records of illness in the general population the reader is referred to the United States Public Health *Hagerstown Morbidity Studies, Nos. I to IX* published in Reprints Nos. 1113, 1116, 1134, 1163, 1167, 1172, 1225, 1227, and 1229 from the Public Health Reports. For an analysis of nursery school attendance from other points of view the reader is referred to J. E. Anderson, *School and Society*, XXIV, (1926), 606.

EDITORIALS

THE GRADE PLACEMENT OF SUBJECT MATTER

It is strange that so little attention has been given by educational research workers to the vital field of correct placement of school subjects in relation to children's mental development. The term "grade placement" might be used and often has been used in this connection, but it is a bit misleading, since it assumes that the grade in which a child sits is indicative of his mental development, whereas all standardized tests and all intelligence tests show that even where there is ability grouping this is not true—that is to say, it is not true of a very considerable number of the children at both the upper and lower levels of each grade.

It is assumed by every curriculum maker that some things are suitable for children of one age and other things for children of another age. No one has proposed introducing Latin grammar in the first grade, or postponing addition facts to the eighth. Through a rough sort of judgment the school topics have been assigned to those grades in which the average child is supposed to be able to master them. This judgment, however, is the result of over a hundred years of trial and error with many successive publications of textbooks.

But no research has been done until very recently to discover whether the topics have been rightly placed.

Within the last four or five years a beginning has been made in this important field.

Spelling was the first subject to be attacked. Horn and Ashbaugh in their *Lippincott Speller* and the writer in his *Individual Speller* graded the words on the basis of the difficulty of these words for children at different levels. Horn and Ashbaugh also took into some account in their grading the tendency of children to use the various words. But even today no speller is really adequately graded according to the combined level of spelling ability and vocabulary knowledge of children.

Reading was the next subject to get some attention in this regard. Terman and Lima in their study of gifted children made an analysis of children's interest in reading at various age levels. The *Winnetka Graded Book List* was a more comprehensive study in the same general field. A later analysis of this list, to determine the difference in mechanical structure of books readable by children at different reading ability levels, was a genuine placement study. A study still in progress as to the difference in content of books interesting to children at different age or ability levels, will shed further light in this same field.

Arithmetic placement is being attacked by the Committee of Seven of the Northern Illinois Conference on Supervision, with the coöperation of 165 cities scattered from the Atlantic coast to Colorado. These investigations of the Committee of Seven are the first comprehensive comparative studies in the field of placement. The cities coöperating with the Committee of Seven teach children the same topic at various mental age levels by a specified technique and measure the results of this teaching. The results of the Committee of Seven's investigations to date will be published in much abbreviated form in the *Twenty-ninth Yearbook* of the National Society for the Study of Education. The Committee is continuing its labors and will continue them for several years in an attempt to do a thorough job in determining the optimum mental level at which each arithmetic topic can be taught.

These things, however, are but first crude beginnings. Is it not time that those of us who are interested in educational research should turn our attention seriously to the problem of finding out at what stage of a child's development he can most effectively learn any given facts, processes or skills?

CARLETON WASHBURNE

INTERSCHOLASTIC ATHLETICS

The recent report on American College Athletics[1] has called forth extensive comment in the newspapers throughout the country. There have been denials, side-stepping of the charges, and serious questionings but so far as the writer has seen, there seems to have been few who have gone directly to the heart of the matter. Bad practices are the direct results of a failure to keep in mind some fundamental theses which ought to be self-evident to administrators and faculties of colleges, alumni and others alike. Briefly they may be set forth as follows:

1. All activities sponsored or tolerated by an educational institution should be educative in nature.
2. The conditions under which these activities are carried on should be pedagogically sound.
3. The outcomes of these activities should supplement the other activities of the educational institution.

In general one would expect no objection to be voiced to the first proposition. Athletic directors may be expected to claim that athletics are educative in nature. Real health education, formation of health habits, development of initiative, persistence, loyalty, self-sacrifice, etc., are all claimed as the results of this work. Such traits *are* exceedingly valuable in most of life's activities. The development of them must certainly be considered an educative activity worthy of collegiate approval and support.

[1] Savage, H. L., and others. *American College Athletics.* New York City: Carnegie Foundation for the Advancement of Teaching. 1929. 383 pp.

To the second proposition, the approval will perchance not be so spontaneous nor so loud. Those entrusted with athletics are not so certain concerning pedagogical principles as they might be and many know their practices are questionable. They follow custom and see no practical way to change it. For example:

While in all other fields of education, we expect the teacher to teach as effectively as possible and then test the results of that teaching, in certain forms of athletics we permit the teacher to tell the class how to answer the questions *during* the examination. Our rules, of course, penalize for coaching from the side lines, yet every one knows that one of the chief purposes of substituting during a game, is to send a player in who has fresh instructions from the coach. The efforts of the New York State Public High School Athletic Association, led by the State Director of Health and Physical Education, to correct such procedures on the secondary school level is being met with bitter opposition and sarcasm from college coaches and sports writers.

As to the third proposition it would be hard to show that athletics supplements the academic work so long as the aim in its games is to win rather than to develop good form.

The fact is that interscholastic athletics has captured the popular fancy. Within scarcely more than fifty years they have moved from a place of activities conducted by the students to a major place in practically all institutions, elementary, secondary, and higher. From no paid coaches at the earlier date we have gone to more than fifteen thousand at the present time.[2] Winning teams attract large crowds and losing teams seem to interest the public but little, even though that public be alumni or student body. Consequently, there is a constant temptation to make *winning* the major objective of the athletic program. For this purpose youth has been exploited, willingly no doubt, but exploited just the same in this procedure.

Correction of whatever ills exist at present in interscholastic athletics awaits wide acceptance of the principles controlling educative activities. Athletics can be educative when conducted on sound pedagogical principles. They cannot be otherwise.

E. J. A.

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[2] Note. These data and others are set forth extensively in a forthcoming volume from Teachers College, Columbia University, by F. R. Rogers, entitled, *The Future of Interscholastic Athletics.*

REVIEWS

Address all communications relative to book reviews to Editor E. J. Ashbaugh, Miami University, Oxford, Ohio.

TROXEL, OLIVER LEONARD. *State Control of Secondary Education.* Baltimore: Warwick & York, Inc., 1928. viii + 232 pp.

Although public education is assumed to be a state function, there is need for study of the exact relation which centralized authority may legitimately bear toward local educational matters. Troxel throws some light upon the question of state control in his study of the actual situations in the various states as they affect secondary education. After reading this book, one is convinced that the relation of the state to the local community merits further study.

The author shows that state control assumes two forms, namely, state laws and the rulings of state departments of education. He proceeds to trace the subject-matter of legislation, on the one hand, and of departmental regulation, on the other. He points out that there is overlapping between the two in regard to such matters as the qualifications of teachers, the high-school curriculum, the classification of schools, and the like.

Troxel has added a bit of significant literature to the slowly accumulating mass of scientific findings in the secondary field. This book projects secondary education against a national background, and thereby discloses the progress which it has made during the past centuries as this progress is reflected in the sources examined. Students of the history of education should find it particularly valuable.

HARLAN C. KOCH

University of Nebraska

MACLATCHY, JOSEPHINE H. *Attendance at Kindergarten and Progress in the Primary Grades.* Columbus: The Ohio State University Press, 1928. xv + 144 pp.

This monograph reports a study whose purpose was to discover evidences of contrasts between groups of children who had attended kindergarten and those who had not. A preliminary study was made of 7,011 children in eight Ohio towns. The main research was a three year investigation covering two groups of children, one of which was followed through the second grade and one through the third grade. The kindergarten and non-kindergarten groups in the primary grades were contrasted as to age; sex; intelligence as measured by the Pressey Primary Classification Test; home conditions as rated on an undefined three point scale; social traits: industry, initiative and oral language as rated by teachers on an undefined three point scale; achievement as measured by Pressey First Grade Reading Test, Haggerty Reading, Sigma I, and Pressey Second Grade Attainment Scale; and promotion records.

Card sorting for the isolation of relationships yielded the following results: no sex differences in kindergarten attendance; larger percentage of kindergarten children from good homes and larger percentage of non-kindergarten children from poor homes; kindergarten children from good homes had a higher average MA than non-kindergarten children from similar homes, but non-kindergarten children from good homes made

better mean scores on certain standardized tests and teacher's ratings in scholarship; a larger percentage of kindergarten children rated *good* in social traits and maintained advantage through the third grade, but no difference existed between groups for lower ratings; kindergarten children averaged younger in each grade, but were younger when they entered first grade; kindergarten children had higher average MA and IQ; when equal ability groups were compared, there was no difference in achievement; the kindergarten group had better promotional records, though less pronounced in Grades II and III, and this advantage was eliminated when equal ability groups were compared.

Results of studies made under the reviewer's direction using the composite of two group tests verify Miss MacLatchy's findings of higher MA and IQ and younger first grade entrance for the kindergarten group. Whether or not the kindergarten develops the ability to score higher on an intelligence test as Miss MacLatchy infers, or whether it selects children of greater mental alertness cannot be decided categorically on the basis of available evidence. The facts of greater mental alertness and younger first grade entrance for kindergarten children are very significant in interpreting the findings of this and other studies with reference to the younger age for their grade and better promotional records of the kindergarten group. The canceling of differences when equal ability groups were studied is consistent with the expectation of these findings. The results with reference to social traits may be a real score for the kindergarten, but the very crude measurement used makes it desirable to study this question by more refined techniques.

Miss MacLatchy's study should be read by everyone concerned with kindergarten primary education. It should help to curb irresponsible generalizations in regard to the value of kindergarten training for later progress in formal school subjects. It would be quite unsound, however, to interpret the study as proving that the activities of the kindergarten are necessarily unrelated to later educational achievement. Until the objectives of both kindergarten and primary grades are more clearly defined and a more consistent and scientific plan applied to the unification of educational guidance during the years of early childhood, we shall be unable to measure the real effect of kindergarten education upon the child's later development, intellectual or social.

Yale University BESSIE LEE GAMBRILL

THAYER, V. T. *The Passing of the Recitation.* New York: D. C. Heath and Company, 1928. 327 pp.

Readable, progressive, sometimes scholarly, and thought-provoking, is this new book which is divided into four parts, dealing with the origin of the recitation, some principles underlying educational procedure today, modern methods which are reactional to traditional teaching methods, and "the essential phases of a teaching procedure."

The historical section is brief, but interesting and stimulating. It discusses not only the origin of the recitation, but the principles underlying it: "These three conceptions of education as the acquisition of knowledge from books, education as a process of writing and impressing upon the mind, and education as an individualistic and selective process which operates primarily by elimination, were three of the most important principles which determined the character of teaching one hundred years ago. They justified their procedure, which was characterized by assignments in daily install-

ments, identical demands upon all pupils, identification of ground covered with genuine learning, and docility and passivity in reproducing for the teacher the information contained 'in the book.' ''. (Page 27)

Part II discusses various principles underlying the more progressive type of education today. Much space is given to an interpretation of G. Stanley Hall and Edward L. Thorndike. Dr. Thayer's own re-interpretation is summed up as follows: ''It is, therefore, in a peculiar and a unique sense that we may say that the center of gravity in education rests with the child, and our teaching procedure must adjust itself accordingly. . . . The child's coöperation and initiative are all important and his interest ever the seed for later harvests.''. (Page 119)

The third part of the book attempts to give an impartial critical survey of supervised study, individual instruction, the socialized recitation, and the project method, all of which Dr. Thayer considers ''reactions to traditional teaching methods.'' The advocates of each of these four types of educational procedure will consider Thayer's description inadequate, inaccurate, and one-sided. Inevitably there are omissions and some inaccuracies in an attempt to expound four views and procedures as extensive and complicated as these four are in their ramifications. Most readers, however, will recognize the obvious fairness of Dr. Thayer's effort, and will consider those criticisms with which they disagree as being due to a lack of entire understanding on Dr. Thayer's part of the systems which he is criticising.

Dr. Thayer summarizes Part III and introduced Part IV in these words:

''Thus we conclude that the project method, supervised study, individual instruction, and the socialized recitation are not sufficient unto themselves alone. It is now our task to undertake to piece together the contributions of these various methods with a view to securing a more comprehensive survey of a teaching procedure in which the methods thus far discussed may be seen to fit as essential elements.'' (Page 274)

This entirely laudable purpose of Dr. Thayer's does not carry out as successfully as one might wish. In attempting to synthesize procedures based upon quite different philosophies he at times leaves out the most essential elements of one procedure or another and at other times glosses over discrepancies by generalizations. To attempt to give in about fifty pages the essential phases of a teaching procedure which will avoid the evils of traditional methods and will combine the virtues of all present day methods is too ambitious to be very helpful. On the other hand, as a hint to the ways different procedures may be used, Part IV may be found stimulating. Few people would disagree with the generalized statement with which this synthesis is summed up: ''The essentials in teaching are to plan consciously for learning situations which motivate a pupil's work through an understanding and appreciation on his part of the significance of what he is to undertake, which promote thoroughness and persistence and responsibility in study by means of both the stimulus of group contacts and intelligently planned opportunities to progress according to individual needs; and a formulation of what has been learned in such a manner that it leads to further growth.'' (Pages 326, 327)

The book is well worth reading.

CARLETON WASHBURNE
Winnetka Public Schools

BENNETT, G. VERNON. *Vocational Education of Junior College Grade.* Baltimore: Warwick and York, Inc., 1928. 244 pp.

Dr. Bennett presents here in book form a revision of his dissertation (1925) for general reference. The book gives a clear picture of the field of occupations on the "middle higher level" for which the public has not as yet provided publicly-supported education in the United States. Reliable analyses of census data are presented to show the number of people actually engaged in vocations who should have the advantages of technical and vocational education of junior college grade in order to carry on their work in a manner satisfactory to themselves and to society. The magnitude of the problem is revealed by an easily understood analysis of twenty-eight type-vocations pursued by persons in each state, showing the number of annual recruits that are needed. This is followed by a summary showing the number of graduating classes each state would be fully justified in maintaining, in order to graduate the number of new recruits needed, in each occupation.

The author reviews the work of existing national rehabilitation, land grant colleges, state universities, state teachers colleges, district junior colleges, and Smith-Hughes subsidized education to show that no one of these systems could at present assume the work of vocational education on junior college levels. Yet, in his conclusions, he proposes a thoroughly reasonable plan for a nation-wide organization that would draw, after a period of experimentation, from existing personnel in the six systems mentioned.

It is a readable book of positive worth to the student and professional worker in vocational education and vocational guidance.

WILLIAM E. WARNER
Ohio State University

INMAN, JAMES HENRY. *The Training of Iowa High School Teachers in Relation to the Subjects They Teach.* Iowa City, Iowa: University of Iowa Studies in Education, August, 1928. 66 pp.

The college training of prospective teachers should be in terms of anticipated teaching needs. The extent to which the training given in eleven Iowa colleges that qualified 1048 graduates for the teaching duties they undertook is shown in this study.

The collegiate and teaching records of the graduates who finished college between 1921 and 1926 evidenced no uniformity of training for teaching in specific fields, and no planned relation of supply to demand in any phase or phases of teaching, but a wider range of subjects was taught than is usually anticipated. The five phases covered are: (1) the undergraduate academic preparation; (2) the relation of subjects taught to those studied in college; (3) the total number of subjects taught during one, two, and three to five years; (4) testimony of graduates regarding college subjects found most useful, and college subjects not taken for which there was a felt need in teaching, and (5) opinions of professors of academic subjects as to the credit-hour requirements for teaching each subject in high school.

The *laissez-faire* attitude of colleges and the haphazardness of the training of prospective teachers are shown in the following facts: six times as many graduates majored in Chemistry as in Physics, although Physics was taught much more frequently by these graduates than was Chemistry. French occurred as a college major more times than Latin, although Latin occurred as a teaching major more than four times as often as French.

Those who had no college credit in subjects taught were: Latin 41 percent, Civics 37 percent, Economics 34 percent,

Sociology 29 percent, Physics 28 percent, and Physical Geography 70 percent. Fifty-one percent taught subjects in which there was no undergraduate college training. The author summarizes the situation in saying, "No matter what a teacher's major subject is, there is a probability that he will be called upon to teach other subjects, as well, if, indeed, not instead of, the subjects majored in."

Perhaps the most striking facts shown in this investigation is that over the five-year period the total number of subjects increased with the number of years of experience. The median teacher had taught three subjects by the end of the first year, four subjects by the end of the second year, and five subjects by the end of the fifth year. Of those who taught from three to five years only six percent taught one subject only; 11 percent taught two subjects only, and 13 percent taught three subjects only. Two teachers taught eleven subjects; six teachers taught ten subjects, and more than one-third taught six or more subjects. It would be interesting to know whether this increase in total subjects comes because teachers take what they can get the first year and then add subjects in getting to those of major preparation, or because increased faith in a teacher's ability to take a new subject comes with added experience in teaching.

Special Methods courses, Practice Teaching, and academic subjects taught by the graduates, were courses for which most need was felt. Psychology and academic subjects taught were those reported most helpful. "Comparatively few of those who have had Practice Teaching have listed this as one of the most helpful subjects." Because of the wide variety of courses taken, the testimony of college graduates regarding the value of specific courses is of little merit. Most of the professors of academic subjects held that a major or minor should be a minimum requirement for teaching subjects in high school. Only one-fourth recommended any methods of teaching as a minimum requirement.

The facts presented in this investigation are of value to all people engaged in teacher-training work. They are especially worthwhile to those who are setting up requirements for graduates of teacher-training courses, and those advising students who are planning to teach.

The appendix contains extensive tables showing the heterogeneity of the training and of the teaching duties of these graduates. Information regarding the supply and demand in various fields is found in the appendix.

If the study had included the graduates of the state institutions the worth would have been greatly increased since a fairly large percentage of the teachers in Iowa are trained by these institutions. The relation of the training of these graduates to their subjects taught during the second and third to fifth years of experience would be a desirable addition.

The recommendations of the author are sound. He points out the need for an increased vocational point of view in teacher-training.

Detailed studies of this kind, covering the graduates of all teacher-training institutions, are needed in each state if those supervising this work are really to know the strengths and weaknesses of their present situations. It is likely that in other states the inadequacy of the training for the duties required of teachers would be equally evident.

EARL W. ANDERSON
Ohio State University

BAIN, WINIFRED E. "An Analytical Study of Teaching in Nursery School, Kindergarten, and First Grade." Contributions to Education, No. 332. New York City: Bureau of Publications, Teachers College, Columbia University.

In this book the author has met an important need of supervisors of young children. She has given them a scale for judging teachers' procedures in these grades, and has built this scale from actual classroom practices according to the principles of education most commonly accepted by educational leaders in the field of kindergarten and primary work.

Her scale will also be helpful to principals and superintendents who must do the supervising. These administrators will especially welcome such help for the kindergarten, because they often feel that the inadequacy of their knowledge regarding this important part of education hampers their efforts in giving constructive supervision.

This scale, if put into the hands of classroom teachers, will help them to understand the aims of their supervisors. Teachers who have little or no supervision will be helped in their efforts to establish better procedures for themselves.

The use of the scale will further cement the unification of kindergarten and first grade, because it assumes that the same educational principles are applicable to both. Often these grades in the same building deny this fact. The kindergarten room may be arranged to give physical freedom, while the first grade may be full of desks nailed securely to the floor. Or, on the other hand, the first grade may have excellent supervision of music, while the kindergarten music may be taught by a kindergartener who cannot sing herself and who has no idea how to teach music to little children.

As yet the nursery school has only a small beginning in public school systems. As nursery schools do come into the public school systems, however, it will be most helpful to use such a scale as Miss Bain's, which binds the nursery school, kindergarten, and first grade into one educational plan.

Miss Bain has tested her scale in many school situations. In doing so, many stimulating results appeared which bear on present tendencies in teaching children in the kindergarten and primary grades. Practically all nursery school scores averaged higher than kindergarten and first grade, and most of the scores of the kindergarten were higher than those of first grade. Nursery schools excelled in the care of physical health and in the general development of children. The poorest record in nursery schools was on items related to the guidance of children's creative expression, but even on these items the nursery school rated higher than did the kindergarten or first grade. The kindergarten scored higher than first grade on habits of cleanliness, care of room, arrangement of the room for work, play, creative use of materials, and the like. The first grade scored highest in social skills.

MADELINE HORN
State University of Iowa

ACHESON, EDNA LUCILE. *The Construction of Junior Church School Curricula.* New York: Teachers College, Columbia University, 1929. viii + 185 pp.

The author presents in this book a study of curricula in the junior church school that is very clear and concise. She has divided her study into three parts: (1) an outline of the present situation in the third-year junior curricula in the light of the objectives of liberal Christianity; (2) data for discovering junior

needs; and (3) some inferences for curriculum construction.

In Part One, the author has shown in a very convincing way the need of very careful study of the existing curricula with sufficient evidence to prove that there are many problems of the modern world, and of the child's immediate world, which are left untouched or are treated in a decidedly haphazard manner. She has shown a liberal attitude and a vision much wider than any denominational limitation in the treatment of this material. Certain questions vital to the education of children in religion are brought out in a thoroughly frank and unbiased manner.

In Part Two, the author has introduced illustrative material that is sufficient to establish in the mind of the reader the fact that the author is not writing from the theoretical standpoint. In dealing with the life of one junior group she evidently had real life experiences. The manner in which these were handled is so thoroughly genuine that any person experienced with children should be able to take many of these incidents and derive from them and the manner in which they were handled, a very considerable amount of help. It is not the purpose of this part to set up general principles, but rather to establish in the mind of the reader the fact that the suggestions which follow in Part Three have a real basis of derivation.

In Part Three, Dr. Acheson undertakes an analysis of the illustrative material in Part Two, to show that ultimate objectives in many of the existing curricula fail to take cognizance of the immediate objectives. Throughout this part of her discussion she keeps particularly in mind the immediate world of the child, as well as the modern use of the Bible and treatment of the modern world. The reader is left with the impression that the existing curricula for junior children are decidedly lacking and that this is due to the fact that those constructing curricula have been inclined to place emphasis on typical situations rather than to approach the instruction of the child from the standpoint of actual life situations.

In summarizing, my impression of the book is that it has distinct value to students working in the field of religious education. It is not a book which could be used as a specific manual but it is one that constantly suggests methods of approach to vital problems. It is stimulating to real thinking.

C. C. McCracken
Ohio State University

Clapp, F. L., Chase, W. J., and Merriman, Curtis. *Introduction to Education.* New York: Ginn and Company, 1929. xix + 569 pp.

In the preface the authors state that "the American student who is preparing to teach acquires a knowledge of but a small part of the entire field of Education. So minute indeed has specialization become, that it may truly be said that students are in grave danger of being unable to see the forest on account of the trees."

The authors have attempted to assemble in brief form such facts and information as will give the student of Education a fine survey of the most important phases of the field, and it has been done in a very interesting and constructive manner.

Beginning with a chapter on the European Background of American Education, such topics appear as the Colonial Beginnings of American Education; Development of Our School System; Organization and Administration of Education in the United States; Cost and Support of Education; Elementary and Secondary

Education; Vocational Guidance; and the Training of Teachers in the United States, England, France, and Germany.

The Scientific Movement in Education is discussed in understandable terms. The Learning Processes and Teaching Procedures are presented in modern fashion, and the book closes with an excellent presentation of the Opportunities in the Field of Education.

One feels while reading the book that master minds have been in charge of the preparation and presentation of the material employed.

BYRON W. VALENTINE
Otterbein College

SHEFFIELD, ALFRED D. *Training for Group Experience*, New York City, *The Inquiry*, 1929. xv + 105 pp.

What would happen to politics and social life in general, if groups of American people adopted a scheme of discussing conflicting issues? If people made a practice of "talking out" issues with various kinds of interested people instead of passively reading about them in magazines and newspapers, what would be the educational results? What would the school do about it?

One of the criticisms which Americans accept is that we are a nation of "joiners." This mania for organization is not only characteristic of out-of-school society, but we find a constant struggle within the school to keep from being over-organized. We have gone through a period of literature which has taken up the problem of the organization of extra-curricular activities in schools. It is now high time to consider the educational purposes of organization in promoting a more democratic social order. There is grave danger that school people will mistake the machinery of extra-curricular activities for the educational ends. Certainly a realistic view of our modern political life should compel teachers to set up ways and means to promote individual thinking through group discussion.

This book contributes significantly to education by placing emphasis on the possibilities of mutual coöperation in group discussion. It gives the concrete, practical experience of a number of national leaders of various types of associations. The experiences of 68 members of a class in Columbia University who proposed to make a study of group leadership, are organized herein, and the philosophical basis, psychological principles and techniques of group discussion are presented. The following major topics from the table of contents give a fair picture of the problems discussed.

The General Plan of the Course,

Group Problems Brought into the Course,

Problems of the Club,
Problems of the Class,
Problems of the Conference Assembly,
Problems of the Committee,

Discussion as the Redirection of Experience,

Outlining a Training Course for Group Leaders.

An excellent discussion of the underlying principles of guiding group action and significance of group learning was made by Professor John Dewey. All interested in group education,—whether those groups be composed of adults or of children,—are urged to use the book to improve not only general social life but individual life also through more rational participation in group experience.

J. J. OPPENHEIMER
Stephens College

CHAPPELEAR, CLAUDE S. *Health Subject Matter in Natural Sciences.* New York City, Bureau of Publications, Teachers College, Columbia University, 1929. viii + 108 pp.

The mode of attack and the conclusions reached by the author of this book are based upon as reasonable a scientific basis as is now probably practical.

There is an urgent need for greater emphasis upon health instruction from as many points of interest as possible. Since a large percentage of the youth does not go on even through high school, it is doubly important that definite concrete health knowledge should be given a just and proper consideration in the lower as well as the high-school curricula.

The study made by Dr. Chappelear is timely in that it reveals the modern tendency of textbook writers to give health information a prominent place in science books. In arriving at correlations between measures of health contents in general science textbooks, state and city courses of study, state examinations, Biology, Physics and Chemistry, a qualitative and objective procedure has been followed which seems quite conclusive of what is being done for health education.

The results of the study show that Biology, a second year high-school subject, gives a slightly higher correlation than does general science. Although the correlation is higher, there is a tendency to repeat the health work given in general science during the first year. Repetition is not harmful, if new and added emphasis is given. Chemistry shows a wide variation as to the amount and emphasis given to health correlation. A few special health classifications are given an intensive treatment, rather than a wide range of different health content. It would seem that textbook writers of applied chemistry could make a greater contribution to health instruction by building up and enlarging upon the required information secured in the natural sciences which come earlier in the high-school course.

Of all the high-school sciences, Physics contributes least to health knowledge, which may be due to the fact that the authors of physics textbooks have not yet realized the possibilities of such instruction.

The study should become productive of much good for teachers and curriculum builders. For teachers, the investigation should be a real incentive for placing responsibility for health instruction in the subject matter of each science taught; for curriculum builders and textbook writers, it should give added emphasis of the proper correlation of health study.

E. J. CABLE
Iowa State Teachers College

BOWEN, EZRA. *Social Economy, A Text in Problems of American Democracy.* New York: Silver, Burdett and Company, 1929. viii + 572 + xi pp.

This work, by the head of the Department of Economics in Lafayette College, is an attempt to place before high-school students the most important problems of our present American Democracy. These problems are found in the fields of government, economics, and sociology. It seems to the reviewer that the materials are very well selected. They do not present American Democracy as a perfect plan sent down from Heaven, nor do they show a world in which everything is out of joint. The total effect is to portray a society which is good, but which must proceed to something better. An especially pleasing feature is the skill with which the author has used facts from

history to give settings to many of the chapters. There is no piling up of irrelevant details merely for the sake of having an historical background, but the presentation is made in such a way as to give the reader a feeling of being quite at home with the problem which he is studying.

Professor Bowen's style, which is clear and forceful, is illuminated frequently by sparkles of wit which add greatly to the reader's enjoyment. Although one of the purposes of the book is to get high-school students to think for themselves, the author sometimes has a degree of positiveness which would seem likely to carry the student along without making any attempt to assert his intellectual independence.

Each chapter is followed by questions on the text, most of which are very good. There are, however, quite a few questions which call for a single word answer which leads to nothing further. There are also readings, some that are designed to give the pupil views different from those of the author. Each of these readings is accompanied by a list of questions—a device which undoubtedly increases their value very greatly. Occasionally the student is given help by a diagram illustrative of some phase of the text. Clearness of understanding is thus increased. The reviewer would suggest, however, that the diagram showing railway mileage of the United States and other countries (page 272) is likely to be misleading because it shows only the total mileage for each country. If another chart were introduced to show the relationship between mileage and size of the country, the pupil would get an idea of the importance of the ratio between these two figures.

Printing and binding are both excellent. An index of eleven pages is provided.

A reading of Professor Bowen's book leaves one with the feeling that the author must have found a great deal of pleasure in writing it. There is in it a living quality that promises to make it very useful.

C. L. ROBBINS
State University of Iowa

RESEARCH ABSTRACTS and BIBLIOGRAPHIES

Address all communications relative to research abstracts and bibliographies to Editor A. S. Barr, University of Wisconsin, Madison, Wisconsin.

COXE, W. W. "Study of the Secondary School Principal in New York State," *University of the State of New York Bulletin*, 1929.

This bulletin presents data on the general training of secondary school principals in New York, their professional training, teaching load, teaching certificates, experience, and salaries.

HUGHES, W. HARDIN. *The Instructional Staff*. Pasadena, California: Bureau of Administrative Research, Pasadena Public Schools, 1929.

"Comparative Study of School Salaries, Taking into Account the Purchasing Power of the Dollar and Making Special Reference to Pasadena." Numerous tables and graphs.

KRAYBILL, D. B. "The Problem of Admitting Rural Pupils to High School." *The Pennsylvania State College Bulletin*. Department of Rural Education, Research Series IV, 1927.

An experimental study of the relative merit of the traditional essay type of written examination and the new objective type of examination in admitting pupils to high schools. Results are presented for seven Pennsylvania counties. On the whole, the written examination seemed to correlate highest with teachers' grades, and the objective tests highest with standardized test scores.

SMITH, H. L. "Sixteenth Annual Conference on Educational Measurements." *Bulletin of the School of Education, Indiana University*, 1929.

This bulletin contains papers by E. A. Johnson on some financial phases of the support of thirty representative junior colleges; by Allan T. Stanforth on measuring the work of the high school; by Dean H. L. Smith on education for world friendship and understanding; by John J. Jones on problems dealing with scholastic achievement in a teachers college; by W. W. Wright on new-type testing; by M. E. Haggerty on education and the new world; by Frances Dearborn on aptitude tests for teachers; by G. K. Wells on trade tests; by Robert C. Scarf on psychological tests; by C. G. F. Franzen on factors entering into successful teaching; by George C. Brandenburg on teacher rating; and by M. E. Haggerty on the improvement of college education.

EXPERIMENTAL STUDIES REPORTED IN CURRENT ISSUES OF OTHER MAGAZINES

EDUCATIONAL ADMINISTRATION AND SUPERVISION

ANDERSON, EARL M., AND STUBBS, ESTHER M. "Salaries of Inexperienced Teachers." *Education Research Bulletin*, College of Education, Ohio State University, VIII, (September 25, 1929), 289-294.

This study pertains to junior and senior high-school teachers in the state of Ohio. The median salary for all teachers was $1,292, the lowest minimum salary was $840, the maximum salary was $1,732.

BRUECKNER, L. J. "A Diagnostic Chart for Determining the Supervisory Needs of Teachers of Arithmetic," *The Elementary School Journal*, XXX, (October, 1929), 96-103.

The author presents a detailed chart for use in making an analysis of the supervisory needs of the teacher in arithmetic.

BUTSCH, RUSSELL, L. C. "A Comparative Study of the Effects of Different Types of School-Building Ventilation on the Health of Pupils," *The Elementary School Journal*, XXX, (October, 1929), 123-131.

Absence due to respiratory illness is significantly related to age, the younger pupils having higher percentages of absence than older pupils, and lower grades have higher percentages of absence due to respiratory illness than higher grades. The general conclusion drawn from the data presented is that, although the pupils in the rooms having natural ventilation differed in certain important respects from the pupils in the rooms having mechanical ventilation, and although a few of the factors are undoubtedly related to absence due to respiratory illness, the difference is not enough in any case to materially account for the larger percentage of absence due to respiratory illness in the case of the pupils in the mechanically ventilated rooms.

GILKEY, ROYAL. "The Relation of Success in Certain Subjects in High School to Success in the Same Subjects in College," *The School Review*, XXXVII, (October, 1929), 576-588.

The author summarizes briefly the results of previous investigations and then presents the results from his own investigation, which is based on a study of the high-school and college records of students who graduated from the New York State College for Teachers in 1921, 1922, and 1923.

HEILMAN, J. D. "Factors Determining Achievement and Grade Location," *Journal of Genetic Psychology*, XXXVI, (September, 1929), 435-457.

A study of the relation of mental age, school attendance, and socio-economic status to individual differences and grade location.

KELLEY, VICTOR H. "An Analysis of the High-School Records of Junior-College Students," *The School Review*, XXXVII, (October, 1929), 598-601.

The author concludes that the junior-college is attracting students slightly superior to the average high-school graduate and that the better high-school students do not go to the better established colleges. The records of the high-school students who graduated from the junior-college show that they were superior students in the high-school.

KNOX, JAMES E., AND DAVIS, ROBERT A. "The Scholarship of University Students Participating in Extra-Curricular Activities," *Educational Administration and Supervision*, XV, (October, 1929), 481-493.

Those who participated in activities ranked higher scholastically than those who did not. Women in activities were found to have a higher standing scho-

lastically than men. When the nature of the activity was similar to the academic work, the students ranked higher scholastically, but when the nature of the activity was different from the academic work, the scholarship of the students in that activity ranked low.

The study is based upon the marks made by 854 students participating in extra-curricular activities at the University of Colorado.

PSYCHOLOGY OF LEARNING

BROWNELL, WILLIAM A. "Remedial Cases in Arithmetic," *Peabody Journal of Education*, VII, (September, 1929), 100-107.

The results secured from six weeks' individual instruction, based upon a careful diagnosis of pupil difficulties and upon a teaching technique which dealt directly with the difficulties involved, produced striking gains.

GUILER, WALTER SCRIBNER. "Improving Computational Ability," *The Elementary School Journal*, XXX, (October, 1929), 111-116.

This article reports the results of a remedial program in computation. The types of errors in addition, subtraction, multiplication, and division made by 10 seventh-grade pupils are presented with a discussion of the remedial program pursued.

HERTZBERG, OSCAR E. "The Relationship of Motor Ability to the Intelligence of Kindergarten Children," *The Journal of Educational Psychology*, XX, (October, 1929), 507-519.

The coefficients found were low and positive, which fact is in accord with the evidence accumulated during the past quarter century to the effect that desirable traits of all kinds tend to be related. Motor dexterity alone, however, has little practical value for the prediction of the mental age of kindergarten children.

SYMONDS, PERCIVAL M., AND LEE, BALDWIN. "Studies in the Learning of English Expression III," *Teachers College Record*, Columbia University, XXXI, (October, 1929), 50-58.

A study of the growth of vocabulary in written composition. The vocabulary of compositions was analyzed and the words tabulated according to their placement in Thorndike's *Teacher's Word Book*. Tables and graphs showing the amount of growth in vocabulary from grade to grade are given.

VYGOTSKI, L. S. "The Problem of the Cultural Development of the Child II," *Journal of Genetic Psychology*, XXXVI, (September, 1929), 415-434.

The author distinguishes between the natural development of behavior, which is closely associated with general organic growth and maturation, and the cultural improvement of psychological functions, methods of reasoning, cultural methods of behavior, etc. A good theoretical discussion.

PHYSICAL DEVELOPMENT AND GROWTH

HAFERKORN, W. "Classification of Children by Means of Physical Indices," (*Die Körperliche Erfassung des Kindes mit Hilfe von Indices*), *Pädagogisch-Psychologische Arbeiten aus dem Institut des Leipziger Lehrervereins*. Published by Dürr, Leipzig, 1929, edited by Max Döring, XVII, 205-251.

After giving a chronological survey of 22 different indices (age, weight, height, chest, etc.), the author critically discusses each one with regard to its validity, relia-

bility, and practicability. In his conclusion he finds that the indices advocated (1) by Bornhardt ($I = G - \frac{B \times L}{240} = 0$), (2) by Pirquet ("Pelidisi" $I = \frac{G}{\sqrt[2]{10 \times G} / Si}$), (3) by Kaup ($I = \frac{G}{L^2}$), and (4) by Gould (also by Quételet and Davenport) ($I = \frac{G^2}{L^5}$) are the most valuable. (G = Weight, B = Chest, L = Height, Si = Sitting Height, 0 = Biceps.)

The above formulas were tested empirically by selecting 90 children in such a manner that they were abnormal in at least one of the measures constituting the above formulas. These 90 children were carefully measured, and the formulas applied. When the formulas were ranked as to the least deviation which they gave from this application, the following order of merit was secured: 1.(4) Gould (best fitting); 2.(2) Pirquet; 3.(3) Kaup; and 4.(1) Bornhardt.

LAZARSFELD, DR. PAUL. "*Körperliche und Geistige Entwicklung* (Physical and Mental Development)," *Die Quelle*, LXXIX, (September, 1929), 803-809.

This investigation was carried on to settle a difference of opinion about the relation between mental and physical traits. Forty-six classes with 1,500 boys and 36 classes with 1,100 girls were chosen for study. The correlations were figured between mental and physical development by means of the Spearman rank-order formula. The resulting correlations ran for the eighth grade, from .09 to .75 with an average of .41; for the sixth and seventh grades, from .13 to .56 with an average of .25; and, for the fourth and fifth grades, from .18 to .71 with an average of .18. For the corresponding girls' classes the averages were .32, .30, and .18. Taking from every class the 25 percent best and the 25 percent poorest, and computing again the correlations between intellectual and physical development of these selected groups, the author comes to the conclusion that there actually exists one group of children with high correlation between mental and physical development, and another with a distinct non-correlation. Both types are numerically equal after the age of eight years. The first group, however, is usually slightly larger, so that, in taking a random sample of children, the correlation coefficient will always be close to zero, and positive.

EDUCATIONAL AND VOCATIONAL GUIDANCE

BEDFORD, J. H. "A Study of Vocational Interests of California High-School Students Based on a Survey of Twelve Rural High Schools," *California Quarterly of Secondary Education*, V, (October, 1929), 47-66.

The author concludes, from this study of 12 rural high schools, that the vocational interests of rural high-school students bear no relation to the vocational opportunities which are opened to them. Nearly 90 percent of rural high-school students have made a definite choice of vocation. Only little over half of these, however, know the training requirements for the vocation chosen. No justification could be found for the excessively large proportion of students choosing the professions, and for the very small percentage of students choosing industry and agriculture.

LIMP, CHARLES E. "Some Scientific Approaches toward Vocational Guidance," *The Journal of Educational Psychology*, XX, (October, 1929), 530-536.

This article summarizes the studies at the Universities of Minnesota, Illinois, and Wisconsin, and indicates the relation-

ship between aptitude testing and vocational guidance. The author concludes that, if a battery of tests can be devised covering the entire range of human aptitudes, vocational guidance may be reduced to a science.

WEERSING, FREDERICK, J., AND KOOS, LEONARD V. "Guidance Practice in Junior Colleges," *California Quarterly of Secondary Education*, V, (October, 1929), 93-104.

The data presented are based upon 28 replies from 30 public junior colleges in the state of California and 24 replies from 28 public junior colleges in 9 other states, making, altogether, a total of 52 institutions in 10 states. The authors conclude that student guidance is a growing problem commanding increasing attention. The list of practices, with the numbers and percentages reporting each, is highly suggestive.

CURRICULUM RESEARCH

CAVAN, RUTH SHONLE, AND CAVAN, JORDAN TRUE. "Education and the Business Girl," *The Journal of Educational Sociology*, III, (October, 1929), 83-93.

A study of a group of Chicago young women office workers with reference to marital status, age, sex, salaries, intelligence, social background, education, interests and problems, their attitudes toward work, further education, their families, their boy friends, their future, etc.

HAVENS, RUTH MACK, AND ANDRUS, RUTH. "Desirable Literature for Children of Kindergarten Age," *Journal of Genetic Psychology*, XXXVI, (September, 1929), 390-414.

An intensive study of the literary interests of 19 children in which various pieces of literature are rated for interest and for such desirable characteristics as, appeal to the imagination, ethical soundness, adaptation to the child's mental level, familiar concepts, repetition, action, vocabulary, rhythm, color, humor, power of holding child's attention, and stimulation of discussion.

LEWERENZ, ALFRED S. "An Experiment in Evaluating Books Read and Enjoyed by School Children," *Educational Research Bulletin*, Los Angeles City Schools, IX, (September, 1929), 10-14.

This study is based upon 259 titles and 2,349 reports from school children. It shows that library books are enjoyed by children, not only according to their chronological ages, but also according to their mental ages. The study reveals a number of reading habits of children relating to interest, intelligence, and types of materials read.

EDUCATIONAL TESTS AND MEASUREMENTS

CHEYDLEUR, FREDERIC D. "The Relative Reliability of the Old and New Type Modern Language Examinations," Reprint from *The French Review*, II, (May, 1929), 22 pp.

After reviewing the experimental work relative to the reliability of old and new type examinations, the author presents the results of a comparison of new type and old type examinations at the University of Wisconsin. From the data presented, the author concludes that the new type examination is superior, but finds a very satisfactory reliability for the old type of examination as given at the University of Wisconsin. The reliability of the old type examinations for the same students that took the new type in the first, second, third, and fourth semesters were .86, .88, .87, and .88 respectively. The cor-

responding r's for the new type test were .91, .96, .94.

CURTIS, FRANCIS D., AND WOODS, GERALD G. "A Study of the Relative Teaching Values of Four Common Practices in Correcting Examination Papers," *The School Review*, XXXVII, (October, 1929), 615-623.

A study of the relative effectiveness of the four methods of correcting examination papers. The method of correction which requires the least of the teacher's time and energy, that under which the pupils check the incorrect items on their own papers during a discussion of the test items, is the most profitable of the four methods. The other three methods involved corrections by the teacher in one way or another.

HERRIOTT, M. E. "One Measure of Outcomes of Instruction in the Technique of Teaching," *Educational Administration and Supervision*, XV, (October, 1929), 514-518.

The author attempts to measure the change in attitude produced by a course in the technique of teaching, and concludes that such courses are valuable and that they produce products not ordinarily measured by conventional tests, either of the essay or informal objective type.

SÁINZ, FERNANDO. "*La Medida de los fenómenos anímicos*" (The Measurement of Human Traits), *Revista de Pedagogía*, Madrid, Spain, VIII, (September, 1929), 404-411.

The author presents an interesting discussion of the relations between measurement and science, and illustrates the quantitative treatment of additional data with simple statistical procedures dealing with averages and measures of variability.

SYMONDS, PERCIVAL M. "Choice of Items for a Test on the Basis of Difficulty," *The Journal of Educational Psychology*, XX, (October, 1929), 481-493.

A very good statistical discussion of the choice of test items.

WILSON, GUY M., AND PARSONS, A. REBECCA. "Critical Examination of a Standardized Spelling Test," *Educational Administration and Supervision*, XV, (October, 1929), 494-498.

The author concludes, from a critical examination of a standardized spelling test, that, if in the year 1928-29, a "standardized" test could be made, published, and recommended, that has such obvious defects as those revealed in his data, then, undoubtedly, it is time that schoolmen begin to understand the fundamental principles of a good examination.

NEW TESTS

BAKER, HARRY J. AND CROCKETT, A. C. "Detroit Mechanical Aptitudes Examinations for Boys and Girls," published by Public School Publishing Company, Bloomington, Illinois, 1929.

Three types of materials are used in these tests: (1) tool knowledge or information, (2) motor skill, and (3) visual acuity.

BLAISDELL, J. G. "Instructional Tests in Biology," published by World Book Company, Yonkers-on-Hudson, New York, 1929.

These tests consist of a series of 25 standardized tests, each covering a unit of work. In the first course in high-school biology there are 8 tests on animal biology, 6 on human biology, 7 on plant biology, and 4 on special and general subjects.

ELWELL, FAYETTE H. AND FOWLKES, JOHN GUY. "Elwell-Fowlkes Bookkeeping Test," published by the World Book Company, Yonkers-on-Hudson, New York, 1929.

The test is designed to assist the teacher in assigning grades in bookkeeping, in determining a standard for admission to classes, in adjusting teaching emphasis on the various topics of the bookkeeping course, and for purposes of educational and vocational guidance.

MORRIS, ELIZABETH H. "Morris Trait Index L," published by Public School Publishing Company, Bloomington, Illinois, 1929.

The purpose of this index is to secure the predominating trends of an individual's reactions, by having him indicate his likes and dislikes, and characteristic feelings and attitudes toward typical situations.

PRESSEY, S. L., AND PRESSEY, L. C. "Pressey Diagnostic Reading Tests for Grades 3 to 9," published by Public School Publishing Company, Bloomington, Illinois, 1929.

There are three tests in this series: vocabulary, paragraph meaning, and speed.

PRESSEY, S. L., AND PRESSEY, L. C. "Pressey Diagnostic Vocabulary Test for Grades 1A to 3A," published by Public School Publishing Company, Bloomington, Illinois, 1929.

The words are selected from the Gates Reading Vocabulary List for the Primary Grades. There are two forms of this test.

SANGREN, PAUL V., AND MARBURGER, WALTER G. "Michigan Instructional Tests in Physics," published by Public School Publishing Company, Bloomington, Illinois, 1929.

The authors present an initial test, a series of 22 instructional tests, and a final examination.

MISCELLANEOUS

BURNHAM, WILLIAM H. "Personality Differences and Mental Health," *Journal of Genetic Psychology*, XXXVI, (September, 1929), 361-389.

The author reviews the several studies that have been made of personality differences, and concludes that personality is not made by education, but may be improved by it; that personality is not made by any kind of training, but may be kept wholesome by right training. To give right training, knowledge of personality differences is necessary.

TOUTON, FRANK C. "Research Activities in California School Departments," *California Quarterly of Secondary Education, V*, (October, 1929), 5-36.

A summary of the research projects in progress in research departments in the state of California. An interesting and valuable summary.

WILLIAMS, S. R. "The Spirit and Method of Research in Undergraduate Courses," *School Science and Mathematics*, XXIX, (October, 1929), 720-727.

A general discussion of the nature, spirit, and method of research.

RESEARCH NEWS and COMMUNICATIONS

Address all research news and communications to Editor V. T. Thayer, Ethical Culture Schools, 33 Central Park West, New York City.

Secretary of the Interior, Ray Lyman Wilbur, announced on October 12, 1929, that the Bureau of Education will be designated in the future as "The Office of Education." This change follows upon the suggestion of Dr. William John Cooper, Commissioner of Education.

Two reasons are given for the change of name. In the first place, Dr. Cooper points out, the legislation creating this branch of government styled it "Office of Education." The more significant cause, however, resides in the second reason put forth by Dr. Cooper. He states:

"The fundamental principle upon which the reorganization has been based is a conception of the Office of Education as a research organization rather than an administration agency."

The Commissioner's statement, reported in *The United States Daily* reads as follows:

"The chief of its administrative functions of the past has been supervision of the educational system of Alaska in so far as it applied to the natives. The Office will, in so far as it can, transfer those administrative functions to other agencies.

"The Office has never been provided with an adequate staff, and additions frequently have been made upon demand of organized groups of educators. This system appears to me to have certain disadvantages which ought not to be overlooked. It encourages organized groups to become active in demanding service of the Office and the addition of specialists to render this service; to look upon these specialists once appointed as propagandists of the interests of such groups.

"It encourages other groups to organize and urge appointment of representatives of their interest to the office staff. It tends to develop a personnel in the Office of Education which reflects current organization in the school world rather than an organization designed to carry out the specific purposes for which the Office of Education exists.

"The first step in the development of a new organization has been already taken by the Secretary of the Interior. The Personnel Classification Board has reclassified the office of commissioner and the Secretary has created the office of assistant commissioner. The first appointee to this assistant commissionership reported for duty on October 1st.

"Two other positions of the Office of Education which should be reclassified are those of librarian and editor-in-chief."

The statement of the importance of these positions and the plea for the extension of these services indicates that service to better education is the definite purpose of the reorganization now undertaken.

One of our correspondents, a veteran in American education, calls our attention in this connection to the similarity between Dr. Cooper's conception of the function of his office and that of Commissioner Harris. He writes:

A Summary of Social Science Tests for the Junior High School

By Luvella J. Kregel

PART I—HISTORY

Name of Test	Author	When Published	Standardized Norms	Grades	Reliability	Validity
Barr: Diagnostic Test in American History	A. S. Barr	1918	S	8–12	r = .79 N = 290	Form A Average r = .54 Form B Average r = .61
Columbia Research Bureau American History Test	Harry J. Carman, Thomas J. Barrows, Ben D. Wood	1927	S H. S. Seniors	H. S.	r = .91	r = .82 School gra and text sc
Davis: Test in U. S. History			S	8–12		
Denny-Nelson: American History Test	E. C. Denny M. J. Nelson	1927	S Norms 7–8	7–8	Part I 7th grade r = .916 ± .007 N = 219 Part II 8th grade r = .930 ± .006 N = 226	Forms A and (school gra and test scores) Part I = .7 ± .08 N = 165 Part II r = .83 ± .0 N = 156
Hahn: History Scale	H. H. Hahn	1922	S Norms 7–8	7–8		
Harlan: American History Test	C. L. Harlan	1917	S Norms 7–12	7–12		
Gregory: Tests in American History	C. A. Gregory	1922	S Norms 7–12	7–12	r = .79 N = 290	Form A Average r = .66 Form B Average r = .63
Kepner Background Test for Social Science	Tyler Kepner	1924	S	8–12	r = .79 N = 215	Form A Average r = .67 Form B Average r = .60
Lynch American History Tests	I. R. Lynch	1926	Informal	8–12		
Miller: Objective High School Tests	C. F. Miller	1926	Informal	8–12		
Odell: Scales for Thought Questions in American History	C. W. Odell	1927	S Tentative Norms 7–12	7–12		

Forms	Time Required	Publisher	Price	Specific Purpose and Analysis
One Form Two Series A and B	30 minutes	Public School Pub. Company, Bloomington, Ill.	Sample sets, 15c. each. $4.00 per 100, each series, A and B	Diagnostic. It is designed to measure comhension, chronological judgment, historical evidence, evaluation of facts, causal relationship. It calls for keen evaluation and discrimination of historical facts. Helps teacher discover her teaching deficiencies.
Two Forms	Part I, II, and III, 1 hr., 30 minutes	World Book Company, 2126 Prairie Ave., Chicago, Ill.	Specimens, 21c.; package of 25 $1.30 per form	Two hundred important historical facts and relationships are included. It is designed not only as an achievement test in historical facts, but measures ability in making judgments. Questions of political, social, economic, geographical and chronological significance are used.
Two Forms	One minute	University of Pittsburgh, Pittsburgh, Pa.	12c. each	For achievement and survey purposes.
Two Forms	40 minutes	World Book Company, 2126 Prairie Ave., Chicago, Ill.	$1.30 per 125	For achievement and survey purposes. National and pre-national periods. Very comprehensive and objective. More than five textbooks were used in making items valid and the judgment of expert historians was used.
One Form: Two Scales, 7 and 8 Grades	No time limit	Public School Pub. Company, Bloomington, Ill.	Sample sets, 20c. each; 3 or more copies, 16c.	Measures child's information, comprehension and judgment in American History. Tests can be arranged for diagnostic work. It is a very comprehensive scale. Tests are easy to give but difficult to score.
One Form: Ten Exercises	About 30 minutes	Public School Pub. Company, Bloomington, Ill.	Sample sets, 6c.; 80c. per 100	This test is designed largely to measure historical facts. One exercise is devoted to civic conduct. It is composed of ten completion or matching exercises. Not difficult to administer or to score.
Two Forms: Three Sets	No time limit	Eau Claire Book Co. Eau Claire, Wis.	Sample sets, 10c.	This test is primarily factual rather than fundamental thought. The test covers all periods of the United States History to 1922. There are seven exercises. One of these is on miscellaneous facts and dates. Easy to score.
Two Forms	40 minutes	Ginn & Company, Chicago, Illinois	Sample set, 25c.; 25 copies either form, with manual, $1.25	The primary purpose of the test is diagnostic. They aim to measure the factual background in the social science subjects. Can be used as achievement tests. They show a fair degree of reliability and a careful selection of materials.
One Form: Six Series, Tentative Forms	About 45 minutes	Educational Test Bureau, 15th Ave. S. E., Minneapolis, Minn.	Sample set, 20c.; 25 tests with directions for each series, 45c.	Test is detailed enough so it can be used for dignostic purposes as well as to measure achievement. Each of the series has five or more exercises. Tests fact knowledge. Objective types, matching, completion, true and false. Series represents salient points in six chronological periods. Easily given and scored.
One Form	Not limited	G. F. Miller, Norman, Okla.	$1.25 per booklet	To test factual knowledge in history. Tests are arranged quite carefully and are interesting. Types are: completion, matching, true-false, incorrect sentences and correction lines. Easily administered. Answers in back of booklet.
One Form for each of 9 Scales	No time limit	Bureau of Educational Research, University of Ill., Urbana, Ill.	Scales are in preliminary form and may be obtained for experimental purposes	Scales cover thought questions on American History over the various periods. The types are analysis, cause or effect, comparison, criticism, discussion, explanation, relationship, reorganization, summary. Helps teacher evaluate pupil's answers more efficiently.

PART I—HISTORY—*Continued*

Name of Test	Author	When Published	Standardized Norms	Grades	Reliability	Validity
Oregon History Tests	E. H. Hedrick and M. C. Hopper	1924	No Information	7-12		
Pressey: Understanding of American History	L. W. Pressey and R. C. Richards	Not Stated	S Norms 6, 7, 8, and 12	6-12	r = .89 N = 296	Average r = .67
Tests: United States History (Plymouth)	Plymouth Press	No Information	S	7-8		
Public School Achievement Test (History)	J. S. Orleans	1928	S Norms 4B-9A	5-8		
Stanford Achievement Test. (History and Literature)	Kelly, Ruch and Terman	1925	S Norms 4-10	4-8	r = .82 N = 832 S. D. each grade 14.4	
Stormsand: American History Teaching and Testing	M. A. Stormsand	1927	Informal	7-12		
Self-Test in American History and Government	F. E. Moyer	1925	Informal	7-12		
Starch: American History Test	Daniel Starch	No Information	S	6-12		
Tyrrell's American History Exercises	J. F. Tyrrell	1925	No Information	7-12		
Van Wagenen Revised American History Scales	M. J. Van Wagenen	1919	S 5-12	5-12		
Van Wagenen Revised History Reading Scales	M. J. Van Wagenen	1923	S 7-8	7-8	r = .57 N = 217	Form A Average r = .48 Form B Average r = .48
Witham's Comprehension History Test	E. C. Witham	1924	S	7-8		
Witham's Hall of Fame Test	E. C. Witham		No Information	7-12		

Forms	Time Required	Publisher	Price	Specific Purpose and Analysis
Two Forms	No information	State Supt. of Public Instruction, Salem, Oregon	Not for sale	A test on fact knowledge of the history of the State of Oregon. Sentence completion and multiple choice types. Highly suggestive for making tests on the same order for other states.
One Form: Four Exercises	25 min. for each exercise	Public School Pub. Company, Bloomington, Ill.	Sample set, 10c.; $2.00 per 100 copies	One of the better tests in American history. The following factors of history understanding are measured: character, judgment, historical vocabulary, sequence of events, cause and effect relationships. Completion type. Easily scored.
One Form: Three Exercises	4 min. each	Plymouth Press, 6749 Wentworth Ave., Chicago, Ill.	No information	Tests measure the following: Events and dates, events and names. Matching exercises. Tests are very general. Some dates called for are of little importance.
Two Forms: 68 Exercises	35 min.	Public School Pub. Company, Bloomington, Ill.	Sample set, 8c.; $1.00 per 100 copies	Comprehensive and objective. Multiple choice, matching, and completion types are used. The tests were taken from objective tests constructed by teachers throughout the country and then refined and checked with recent textbooks. Can be used for survey and diagnostic purposes.
Two Forms	12 min.	World Book Company, 2126 Prairie Ave., Chicago, Ill.	Advanced Exam., 25 booklets, $1.90. Sample set, 60c.	Test seven of Forms A and B advanced examination relate to history and literature. Multiple choice type of question. Exercises test important facts of American history.
A Booklet On Testing	Not Limited	MacMillan Company, Chicago, Ill.	80c per copy	This booklet is a manual on supervised study and objective tests. It covers all phases of American history. Very helpful to a teacher where Beard & Bagley history texts are used. Objective tests, such as: completion, yes or no, association, reasoning, and enumeration.
A Booklet On Testing	Not Limited	Self-Testing Pub. Company, 605 West 51st St., New York City, N. Y.	40c per copy	These tests are primarily student aids in self-testing. They cover periods and phases of the entire American history course. Questions test factual knowledge. Answers appear in the back part of the book.
One Form	Not Limited	Daniel Starch, 1374 Massachusetts Ave., Cambridge, Mass.	2c per sheet	Information test. Completion form arranged to control answers. Too many questions center about wars. Some dates called for in the colonial period are not essential. The test is easily administered and scored.
Three Forms for Each Unit, 16 Units	No Information	The Palmer Company, 120 Boylston St., Boston, Mass.	Sample set 75c. A package of 150 sheets, 3 types of exercises, $1.35	It is a very comprehensive test on all periods in American history. The material on colonization is over-emphasized. The average time allotted for history would not permit details called for in this test. New objective forms.
One Form: Three Exercises	40 minutes	Bureau of Publications, Teachers College, Columbia University, New York City, N. Y.	Sample sets, 15c.; $1.25 per 100 sheets	To measure information, thought and judgment. They call for keen discrimination and weighing of fact knowledge. Economic and social changes are stressed along with political history. Multiple choice. Scoring is difficult.
One Form Two Scales	40 minutes	Public School Pub. Company, Bloomington, Ill.	Sample set, 20c. Scale A $3.00 per 100. Scale B $3.00 per 100	Thirty significant paragraphs in history are chosen for reading followed by a thought question. Material is well chosen and questions are clearly stated.
Two Forms for Each Grade	About 20 minutes	J. L. Hammett & Co. Newark, N. J.	Sample set, 25c.; $1.25 for 50 copies	To measure interest and fact knowledge. Completion type. The first two forms cover the periods of exploration, discovery, and colonization. The second two forms deal largely with the factual knowledge of the Revolutionary and Civil Wars.
One Form	Not Limited	J. L. Hammett & Co. Newark, N. J.	Price $1.00 for 50 copies	Sixty-three names taken from the Hall of Fame of New York University are used. A code of 15 classifications is given such as educator, philanthropist, scientist, etc. Pupil is to classify names, using code letters.

PART II—GEOGRAPHY

Name of Test	Author	When Published	Standardization Norms	Grades	Reliability	Validity
Brannon's Diagnostic Tests in Geography	M. E. Brannon	1926	S Norms 5–8	5–8		
Brannon: Practice Tests in Geography	M. E. Brannon	1926	Informal	5–8		
Boston Research Tests in Geography	H. M. Barthelmes	1919	No Information	4–8		
Buckingham-Stevenson Place Geography Tests	B. R. Buckingham and P. R. Stevenson	1922	S Norms 4–8	4–8	r = .86 P.E. = 11.2 N = 82 Grades 5+7	
Buckingham-Stevenson Information Problems	B. R. Buckingham and P. R. Stevenson	1923	S Norms 6–9	6–9	r = .87 P.E. = 2 N = 195 Grades 5+7	*U.S. Form 1 (3) r = .53 ± .04 (4) r = .69 ± .03 (5) r = .58 ± .03 (6) r = .72 ± .02
Brueckner-Cutright Essential Location Exercises in Geography	Brueckner and Cutright	1927	No Information	5–8		
Courtis Supervisory Test in Geography	S. A. Courtis	1918	S Norms 5–7	5–7	r = .92 P.E. = 2.3 N = 166 Grades 5+7	* (2) r = .58 ± .03 (3) r = .47 ± .04 (4) r = .68 ± .03 (5) r = .64 ± .03 (6) r = .85 ± .02
Gregory and Spencer's Geography Test	C. A. Gregory and P. Spencer	1922	S Norms 6–9	6–9	r = .81 P.E. = 5.7 N = 175 Grades 5+7	* (5) r = .75 ± .02 (6) r = .57 ± .05
Guhin: Know America First Geography Test	M. M. Guhin	No Information	No Information	5–8		
Hahn-Lackey Geography Scale	W. H. Hahn and E. E. Lackey	1922	S Norms 4–8	4–8	r = .81 P.E. = 1.6 N = 175 Grades 5+7	* (6) r = .72 ± .04
New York Standard Tests	E. A. Nifenecker	1922	S Norms 4A-8B	4–8		
Posey-Van Wagenen Geography Scale	M. J. Van Wagenen	1922	S Norms 5–8	5–8	r = .58 P.E. = 4 N = 169 Grades 5+7	* (4) r = .51 ± .04 (5) r = .56 ± .04 (6) r = .52 ± .05

Forms	Time Required	Publisher	Price	Specific Purpose and Analysis
Two for some. 63 exercises	10 minutes	McKnight & McKnight, Normal, Illinois	One cent for each test' $1.00 per 100 less 20%. Key and Median Scores 20 cents	There are (1) place tests, (2) factual tests, and (3) problem tests for every continent, the world and the United States. Very comprehensive. Multiple choice type of test.
One Form 107 exercises	No information	The McMillan Co., Chicago, Illinois	80c per booklet	Can be used for diagnostic and achievement purposes. Very comprehensive and usable. New objective test. Maps are used for place geography. Tests cover all continents.
One Form Grade 7, One Form Grade 8	No information	Department of Education Investigation and Measurement, Public Schools, Boston, Mass.	Not for sale	General geographic information. Place geography. Several cause and effect questions Short tests.
Three Forms: Two exercises	Short	Public School Pub. Company, Bloomington, Ill.	20c for three forms; ordered in quantities, 12c.	Information. Measure pupil's knowledge of place geography of both the world and the United States. Easy to give and easy to score.
One Form: Two exercises	14 minutes	Public School Pub. Company, Bloomington, Ill.	Sample set, 15c.; $2.00 per 100 copies	Information. It is a test on factual knowledge of the geography of the United States, Asia, South America and Europe. It is a multiple choice type of objective test.
One Form: Seven exercises	No information	Educational Test Bureau, 15th Ave. S.E., Minneapolis, Minn.	Prices vary with exercises	Detailed enough for remedial work. Tests are composed of from four to seven lengthy exercises for each continent. They are placed on cards for either drill purposes or individual study.
One Form: Two exercises	States, 4M, Cities, 2M. Oceans and Continents one minute	S. A. Courtis, 1807 E. Grand Blvd., Detroit, Mich.	Complete sets, two forms containing materials for 40, $1.50; renewals $1.00	First test measures pupil's ability to name states and locate cities on outline maps. Second test deals with oceans and with continents. The test covers minimum places of importance. Lends itself easily to survey work.
Three Forms	45 minutes	Eau Claire Book Co., Eau Claire, Wis.	Sample sets per form, 10c; $4.00 per 100, including directions	Covers the following phases of geography: Commercial, causal, place, descriptive, physical with map study. Quite comprehensive. Easy to administer and score.
One Form	No information	Hub City School Supply Company, Aberdeen, S. D.	5 cents each; $3.00 per 100 copies	It is a place geography test of the largest cities and capitals of every state in the United States. The index number represents the population of each of these cities. Can be used as a study guide.
One Form	Depends upon the number of tests given	Public School Pub. Company, Bloomington, Ill.	Single copy, 20c.; 3 or more copies, 15c. per copy	Diagnostic and achievement. Questions are selected from the scale to meet classroom needs. Carefully selected questions are used to test pupil's knowledge of geographical situations.
One Form: Eight exercises	12 to 15 minutes for each exercise	Bureau of Reference, Research and Statistics, Board of Education, 500 Park Ave., New York City	Not for sale	Test is diagnostic in character. There are eight separate tests; each test is made up of 20 questions. Tests and questions are arranged according to difficulty. Series is limited to the United States. Test does not measure facts, but requires geographical thinking and reasoning.
Two Forms: Eight exercises	40 minutes	Public School Pub. Company, Bloomington, Ill.	Sample set, 30c.; $1.50 per 100. Teacher's Handbook, 20c.	Information scale; thought scale. Some tests are on general geographical information, others on particular continents. Very helpful in suggestions for informal and improvised testing.

PART II—GEOGRAPHY—*Continued*

Name of Test	Author	When Published	Standardization Norms	Grades	Reliability	Validity
Public School Achievement Test in Geography	Jacob S. Orleans	1928	S Norms In Preparation	4–8		
Russell-Harr Geography Tests	H. H. Russell L. Harr	1926	S Norms Given for Units	3–8		
Starch Geography Test	Daniel Starch	No Information	S	5–8		
Tyrrell's Geography Complete Tests	J. E. Tyrrell	1925	No Information	6–8		
Witham's Standardised Geography Tests	E. C. Witham	1920	S Norms 5–8 and High School	4 to H. S.		
Whither Geography Scale	No information	1923	No Information	4–8		

PART III—CIVICS

Name of Test	Author	When Published	Standardised or Informal Norms	Grades	Reliability	Validity
Brown-Woody Civics Test	A. W. Brown and Clifford Woody	1926	S Norms 8–12	8–12	$r = .92$ $N = 600$	$r = .65$ Scores and Teachers' Marks
Burton Inventory in Community Civics	W. H. Burton	1927	No Information	6–9		
Chassell-Upton Citizenship Scales	C. F. Chassell S. M. Upton L. M. Chassell	1922	S Norms 1B-7A	1–8	Avg. $r = .89\frac{1}{2}$	
Guhin: U. S. Constitution as a Game	M. M. Guhin	No Date	Informal	8–12		

Forms	Time Required	Publisher	Price	Specific Purpose and Analysis
One Form: Four exercises	35 minutes	Public School Pub. Company, Bloomington, Ill.	Sample set, 10c.; $1.00 per 100 copies	Sixty-two information and thought exercises on various phases of world geography and the United States. Contains a section on map reading. Highly objective. Easy to give and score.
One Form: 32 exercises	No time limit	McKnight & McKnight, Normal, Illinois	Price less than 100 copies, 1c each; $10.00 per 1000, less 30%	Can be used for both diagnostic and achievement purposes. Tests are very comprehensive, covering the geography of Europe, Asia, Africa, Australia, the world, the United States and possessions, North America, South America and sections of the United States.
One Form:	Not limited	Daniel Starch, 1374 Massachusetts Ave. Cambridge, Mass.	2c per sheet	Information test. Measures fact knowledge of the United States and the world. Completion form. Achievement. Easy to administer and score.
One Form: Seven exercises	Not stated	The Palmer Company, 120 Boylston St., Boston, Mass.	Complete sample set, 20c.; $1.00 100 sheets	Useful for study aids and as information tests. Tests measure fact knowledge of sectional United States, United States as a whole, outlying possessions of the United States and countries of North America.
One Form: Eight exercises	20 to 30 minutes	J. L. Hammett Co., Newark, N. J.	Sample set, 10c.; $1.75 for 50 including directions	Place geography and geography reasoning tests. Copious use of maps. Test can be used for diagnostic work and achievement. Exercises on the following: the world, United States, South America, Europe, Asia, Africa, and commercial geography.
One	No information	California Bureau of Juvenile Research, Whittier State Normal Sch., Whittier, Calif.	Sample set, 10c.	Fact knowledge tested. Phases of geography tested are: geographical names, cities, islands, physiography, people, products, travel, animals. Multiple choice. Easily administered and scored.

Forms	Time Required	Publisher	Price	Specific Purpose and Analysis
Two: Three exercises	35 minutes	World Book Company, 2126 Prairie Ave., Chicago, Ill.	Sample set, 15c.; 25 Booklets, $1.30	Achievement test primarily. The exercises test civic vocabulary, civic facts and the application of the principles of civics. Each item in the test covers a point found in at least five of nine common textbooks. Can be used for diagnostic purposes.
One: Two exercises	No information	To be published by World Book Company, 2126 Prairie Ave., Chicago, Ill.	No information	Information. Test measures not only fact knowledge, but also general civic attitudes. The inventory also includes an informal inquiry of the pupil's social life. Multiple choice form. Easily administered.
One: Eight Scales	Not limited	Teachers College, Columbia University, New York City, N. Y.	70c per 100; 40c for instruction book	To help establish right habits and attitudes in children. To be used in upper grades as self-measurement scales by pupils or coöperatively with teacher. The habits are well chosen for building character and developing desirable personalities. Main object is to improve conduct.
One	Not limited	The Hub City School Supply Co., Aberdeen, S. D.	25c per dozen	To be used for drill purposes as well as for achievement. To stimulate in learning the fundamental facts of the Federal Constitution. Completion form. No scoring device given.

PART III—CIVICS—*Continued*

Name of Test	Author	When Published	Standardized or Informal Norms	Grades	Reliability	Validity
Hill, H. C.: Test in Information and Attitude	H. C. Hill	1926	S Norms 6–12	6–12		
Hill-Wilson Civic Action Test	H. C. Hill H. E. Wilson	1928	S Norms 6–12	6–12		
Kepner Background Test in Social Science	Tyler Kepner	1924	S	8–12		
Lindsey-Fort: Standardized Test on the Constitution of the U. S.	J. C. Lindsey and L. W. Fort	1924	S	8–12		
Miller, G. F.: Objective Test in Civics	G. F. Miller	1926	Informal	8–12		
Moyer: Self-Test in American History and Government	F. E. Moyer	1925	Informal	7–12		
Odell: Scales for Thought Questions in Civics	C. W. Odell	1927	Informal	8–12		
Patterson: Test on the Constitution of of the U. S.	R. G. Patterson	1921	S	8–12		
Payne: Test in Habits and Practices in Health and Accident Prevention	G. E. Payne	1921	S Norms 1–12	4–8		
Whittier Scale for Grading Neighborhood Conditions		1921	S	6–9		

Milwaukee Public Schools

Forms	Time Required	Publisher	Price	Specific Purpose and Analysis
One: Two Sets	Not limited	Public School Pub. Company, Bloomington, Ill.	Sample set, 10c.; $1.00 per 100 copies	To test information and attitudes. They test only the minimal essentials for good citizenship. These tests are especially applicable when used with the Hill textbook, *Community Life and Civic Problems*. Multiple choice; easy to score.
One	Not limited	Public School Pub. Company, Bloomington, Ill.	Sample set, 10c.; $1.00 per 100 copies	This test in civic action is based on the analysis of recent textbooks in social science, on the pooled judgment of leaders of research and actual civic experience as reported by adult citizens. Multiple choice. Easy to give and easy to score.
Two: A and B	40 minutes	Ginn & Company, Chicago, Illinois	Sample set, 25c.; $1.25 for 25 copies, either Form	Diagnostic. They aim to measure factual background in the social science subjects. Twenty-one representative textbooks were used in the selection of this material. The core of the test is history. Exercises are graded according to difficulty.
One	25 minutes	Constitution Pub. Company, Mitchell, S. D.	50c per dozen	Information test on the Constitution. Completion form. Calls for essential facts only. Time allotted for giving seems too short.
One	Not limited	George F. Miller, Norman, Oklahoma	$1.25 per book	Information. To test fact knowledge in civics informally. Objective tests such as matching, incomplete and true-false are used. Booklet contains other tests.
One	No information	Self-Test Pub. Co., 603 W. 51st St., New York City, N. Y.	40c each	These tests are primarily student aids in self-testing. The questions are factual and in the completion form of objective tests. Answers appear in the back part of the book.
One: Nine Scales	Not limited	Bureau of Educational Research, Univ. of Illinois, Urbana, Illinois	Tests are available in preliminary form for experimental purposes	Scale is similar to those used in handwriting and composition. Answers vary in value from 0 to 10. Scales cover civic thought questions on analysis, cause or effect comparison, criticisim, discussion, explanation, relationship, organization and summary. Helps teachers in evaluating pupils more effectively.
One: Three exercises	Not limited	The Palmer Co., 120 Boylston St., Boston, Mass.	Sample set, 20c.; $1.80 per 100	Information. Test aims to measure fundamental facts and certain vital dates in American History.
One: Eleven exercises	Not limited	Public School Pub. Company, Bloomington, Ill.	10c per copy	Diagnostic purposes and achievement. To check up health and accident prevention habits at the beginning and end of each semester. Method is outlined in *Education in Health*, Lyons and Carnahan, Chicago, Illinois.
One	Not limited	California Bureau of Juvenile Research, Whittier State School, Whittier, Calif.	10c per copy; 5c for guide	To help obtain information regarding recreational facilities; neatness, sanitation improvement, institutions and establishments, social status of residents and average quality of homes. The sum of the item grades constitutes the index for neighborhood conditions.

LUVELLA J. KREGEL.

"In the days of long ago, when I was in closer touch with the work of the Bureau of Education, while Dr. W. T. Harris was the commissioner, the research feature was placed first and was devoted at that time particularly to a study of education in Europe and in South American countries. It pleases me to know at this time that Commissioner Dr. William John Cooper has undertaken to make the Office of Education accord in its work with the purpose of the original establishment of the Office. Whatever may be thought of the possibilities of government direction of some of the special purposes of education, the great requirement is accurate information made available with regard to the accomplishments of the schools under conditions for education as these may change from time to time."

The new Stanford Achievement Test, by Truman L. Kelley, Giles M. Ruch, and Lewis M. Terman, has been recently published by the World Book Company. This test is a thorough revision of the widely used Stanford Achievement Test, and furnishes a battery of tests for each of the school subjects for grades two to eight. The New Test covers all the educational testing in the grades mentioned, and can be used in grade nine for the subjects it covers. The tests are printed either as a composite battery in a single booklet, or as a single test in each of the eight different subjects.

The desirable features of the old test have been retained and the following new features added. (1) Paragraph meaning test has been extended to include the ninth grade; (2) Length of line has been shortened to conform with results of scientific investigations of eye movements; (3) Separate tests have been constructed in history and civics, literature, geography, physiology and hygiene; (4) The arithmetic test has been lengthened to include more types of computation examples and to cover the work of the junior high school; (5) Scoring is made easier by improving the make-up of the examinations.

The Educational Profile Chart, printed in each test booklet, is another feature. The chart shows a graphical representation of the pupil's standing. A glance at the profile shows the subjects in which he is weak or strong, and how his scores compare with the age and grade norms. The graph can be easily and quickly drawn.

The rigorous methods of selection and try-out of the numerous questions insures the validity and high reliability of the complete test. Age and grade norms representative of the general status of pupils throughout the country are supplied for each of the separate tests. The norms for the new test forms have been made comparable with the old so that schools can compare the new scores with the old.

R. E. GREEN

Ohio State University

RESEARCH AND SERVICE IN SAN FRANCISCO

The 1928-29 activities of the Department of Educational Research and Service of the San Francisco Public Schools are reported in a recently published bulletin. These activities include a city-wide and local testing program, an age-grade study, population studies, recommendations with regard to building location, evolution of building plans, studies of administrative problems, such as training, certification and experience of principals, teaching load in high schools, size of classes, teacher absences, and a number of miscellaneous studies. The questionnaires answered during the year form an impressive exhibit. There were forty-two separate inquiries and the subjects range from questions concerning cost per pupil, average daily attendance, to "information concerning American history." The bulletin indicates a year crowded with accomplishment.